The Hungarian Journal of

VASCULAR DISEASES

2024/3

Scientific Program of the 4th *Another* Phlebology Congress

13th Balkan Venous Forum

ABSTRACT BOOK

4-5 October 2024
Hotel Mercure Castle Hill,
Budapest, Hungary

The Hungarian Society for Angiology and Vascular Surgery
The Hungarian Society for Cardiovascular and Interventional Radiology

Világszerte elismert hatékonyságú flavonoid komplex[1-6]

krónikus vénás betegség és az aranyérbetegség kezelésére

MPFF

Legmagasabb szintű evidenciával ajánlott hatóanyag a magyar irányelv szerint[1]

#1

VILÁGELSŐ VÉNAERŐSÍTŐ[7]

1A

ERŐS AJÁNLÁS[1-2]

1 – Az Emberi Erőforrások Minisztériuma egészségügyi szakmai irányelve a krónikus vénás betegség ellátásáról, 2021. **2** – Nicolaides AN, et al. Int Angiol. 2018; 37(3): 181-254. **3** – Agarwal N, Kumkum Singh K. et al. Ind J Surg. 2017.01.09. DOI 10.1007/s12262-016-1578-7. **4** – Godeberge P. et al. J Comp Eff Res 2021; 10(10):801 813. **5** – Paysant J, Sansilvestri-Morel P, Bouskela E, Verbeuren TJ. Int Angiol. 2008;27(1):81-85. **6** – Garner RC, et al. Pharm Sci. 2002;91:32-40. **7** – Based on internal analysis by Servier International using data from the following source: IQVIA Analytics Link for the period Moving Annual Total (MAT) Q2 2023 in 75 countries reflecting estimates of real-world activity.

Bővebb információért olvassa el a gyógyszer alkalmazási előírását!
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24 DETLX 2 AH 1 / 2024.07.09.

Welcome Message

On behalf of the Hungarian Venous Forum and the Hungarian Society of Angiology and Vascular Surgery, together with the Balkan Venous Forum pleased to welcome you at our international meeting, the Another Phlebology Conference.

This title dates back to times when new methods like ultrasound diagnostics and endovenous interventions were introduced. These techniques made significant changes in our discipline so it has become *another phlebology*. We stick to this title because the development hasn't stoped.

This is the 4th occasion that we are organising this stimulating meeting, getting together to discuss some fresh and useful ideas within phlebology. The previous ones in 2014, 2017 and 2019 were very successful, and inspired us to turn this into a series of meetings in Budapest. Unfortunately, this series was interrupted due to the Covid pandemic, but now we are continuing it again. After the long pause, we hope to hear more news.

Excellent and highly regarded speakers will be present as were in our former events as well.

Our aim is a little different from that of other conferences. We prefer to speak about very innovative and unknown things, rather than prove topics which have already been proved many times before. This means we would like to discuss both recent observations, works in progress without strong supportive evidence, and other things not really new, but not yet mainstream in our discipline.

At the same time, we intend to keep these presentations practical. There are different methods, used only by a few colleagues, which could be beneficial for many patients. We are also looking for some non-evidence-based dogmas, and trying to get rid of them. We are very glad that our region, which previously lagged behind western countries in terms of phlebology, has become so active and creative in the last few decades. Most of the presentations are from this region.

A new thing at this conference is that together we evaluate the novelties of the presentations and the best one will get an award.

We are happy that you are here in Budapest, one of the most beautiful capitals in the world. We hope you enjoy your time here!

Dr. Imre Bihari
Chair of the Conference

Another Phlebology

Hotel Mercure Castle Hill, 41-43 Krisztina körút, Budapest, Hungary, 1013

4-5 October 2024

Chair of the Conference
Dr. Imre BIHARI PhD
Associate Professor

Organising and Scientific Committee:

Prof. Gábor MENYHEI PhD
Dr. György NÁDASY PhD
Prof. Zsolt PÉCSVÁRADY PhD
Dr. István ROZSOS PhD
Prof. Tamás SÁNDOR PhD
Dr. Győző SZOLNOKY PhD

Invited speakers:

Prof. Sergio GIANESINI
Prof. Athanasios GIANNOUKAS
Prof. Peter GLOVICZKI
Dr. Monika GLOVICZKI
Prof. Alexander FLOR
Dr. Lowell KABNICK
Prof. Andrew NICOLAIDES
Dr. Attila PUSKÁS

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Exhibitors:

Biolitec, Hartmann-Rico, Invetnmed, Medicor, Richter Rt, Servier, WLB Service

Information:

www.phlebology.hu, imre.bihari.dr@gmail.com

General Information

Conference Venue:

Hotel Mercure Castle Hill, Budapest, Krisztina krt. 41-43. 1013
Tel: 00-36-1-488 8100
https://mercurecastlehill.hu-budapest.com/en/

Dates: 4-5 October 2024

Friday 4 October	8.30 – 22.00
Saturday 5 October	8.30 – 17.00

Registration Desk is open

Friday 4 October	7.45 – 17.00
Saturday 5 October	8.00 – 18.00

On Site Registration is available.

Opening Ceremony:

Friday 4 October, 9.00 – 10.00 Hotel Mercure Budapest, included in the participation fee.
Coffee breaks and lunch written in the program are covered by the registration fee, and served in the exhibition area

Hands-on course:

US examination of deep and perforating veins (not included in the registration fee)
Friday 4 October 8.00 – 9.00 In the congress area.

Congress Dinner (Hungarian Evening):

Friday 4 October, 19.00 – 22. 00 (not included in the registration fee)
Hotel Mercure Budapest Castle Hill

Congress Language:

The official language of the conference is English.

Liability and Insurance

Neither the Organisers nor the Conference Secretariat will assume any responsibility whatsoever for damage or injury to persons or property during the Conference.
Participants are recommended to arrange their personal travel and health insurance.

Changes:

The Organisers reserve the right to adjust or change the programme as necessary.

A SZÉP ÉS EGÉSZSÉGES LÁBAKÉRT

A WLB Service Kft. 2024 őszén és 2025 tavaszán az alábbi 4 db

Akkreditált, pontszerző szkleroterápiás képzést szervezi

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Mikroszkleroterápiás tanfolyamok (alapképzés):

Tanfolyamok címe:

A pókvénák, seprűvénák, retikuláris erek hatékony kezelési formái - mikro-szkleroterápia

Helyszíne: **Á+B Klinikák**

1081 Budapest, Népszínház utca 46.

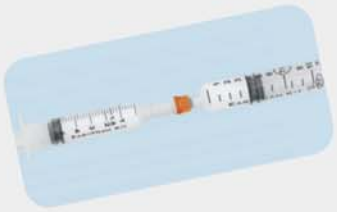
Dátumok: 2024. november 9 (szombat) – OFTEX-kódszám: SE-SZTOK/2024.II/00278

2025. február14 (szombat) – *az OFTEX portálon február 22-i dátum szerepel!*

Akkreditációs pont: 16 pont/képzés

Szakképesítések: Sebészet, érsebészet, bőrgyógyászat, angiológia, plasztikai sebészet

Díjak: 30.000 Ft / képzés



Habszkleroterápiás képzések (haladó):

Képzés címe:

A vénás betegségek kezelése a legkorszerűbb szkleroterápiás módszerekkel (ultrahang-vezérelt habszkleroterápia, felülúszó hab, kombinációs kezelések)

Képzések helye: Theta Pest Rendelő
1091 Budapest Vaskapu u. 1

Dátumok: 2024. december 7 (szombat) – *az OFTEX portálon a tanfolyam dátuma november 30 !*
2025. március 8 (szombat)

Oftex kódszám: novemberi képzés: SE-SZTOK/2024.II/00328

Szakképesítések: Sebészet, érsebészet, bőrgyógyászat, plasztikai sebészet, angiológia

A képzés díja: 40.000 Ft. **Akkr pont:** 16 pont/képzés

Jelentkezés illetve további információkért kérjük vegye fel a kapcsolatot **az alábbi kontaktok** valamelyikével, vagy látogasson el az **oftex.hu** weboldalra, ahol megtalálja a képzéseket:

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Scientific Program of the 4th Another Phlebology Congress

Friday 4 October 2024

8.00 – 9.00 Hands-on workshop. *Attila Puskas (Romania)*: US examination of deep and perforating veins. (Separate registration required)

Opening Ceremony *(Chair: A Nicolaides, I. Bihari)*

9.00 – 9.20	**1.1**	Welcome. What is Novelty Factor? *I Bihari (Hungary)*
9.20 – 9.40	**1.2**	Highlights and Controversies in the 2024 International Guidelines on VTE. *Andrew Nicolaides (Cyprus)*
9.40 – 10.00	**1.3**	Venous Guidelines of the AVF. *Peter Gloviczki (USA)*

Pathophysiology. US diagnosis *(Chair: P Gloviczki, A Giannoukas)*

10.00 – 10.12	**2.1**	Venous Circulation in the Space. *Monika Gloviczki (USA)*
10.12 – 10.24	**2.2**	Duplex Immediately Following Thermal Truncal Ablation Should Not Be Performed. *Lowell Kabnick (USA)*
10.24 – 10.36	**2.3**	Intermingling of Hemodynamic and Cell Pathology Components in the Pathomechanism of the Lower Extremity Chronic Venous Disease. *György Nádasy (Hungary)*
10.36 – 10.48	**2.4**	The Story of the Unforgiving Vein - or How toTreat the Popliteal Fossa Perforating Vein. *Frantisek Zernovicky (Slovakia)*
10.48 – 11. 00	**2.5**	Popliteal Vein Entrapment Syndrome: Report of Three Recent Cases with our Institutional Experience. *Yohei Yamamoto (Japan)*
11.00 – 11.12	**2.6**	What Flows Within the Solidified Glue? *Imre Bihari (Hungary)*

11.12 – 11. 15 *Discussion*

11.15 – 11.40 *Coffee break*

Surgical and endovenous interventions on varicose veins *(Chair: F Zernoviczki, G Menyhei)*

11.40 – 11.52	**3.1**	New Superficial Devices for Truncal Ablation Undergoing Trials. *Lowell Kabnick et al (USA)*
11.52 –12.04	**3.2**	Are All Lasers And FA Devices Equivalent? Review Of The Literature. *Alvaro Orrego (Chile)*
12.04 – 12.16	**3.3**	Treating Varicose Veins with Conservative Surgical Techniques: Insights from Our Practice. *Luminita Vescu (Moldova)*
12.16 – 12.28	**3.4**	Concomitant Mini Phlebectomy vs. Staged with Endovenous Laser Ablation (EVLA). *Mohamed Mahmud (Bosnia - Herzegovina)*
12.28 – 12.40	**3.5**	Open Redo Groin Surgery is Still a Valid Option for Groin Recurrence Following Endovenous Ablations. *Olle Nelzén (Sweden)*
12.40 – 12.52	**3.6**	15 Year Experience in Laser Crossectomy. *Imre Bihari (Hungary)*

12.52 – 13.00 *Discussion*

13.00 – 14.00 *Lunch break*

VTE prevention and treatment *(Chair: M Gloviczki, O Nelzen)*

14.00 – 14.12	**4.1**	Management of High-risk Superficial Vein Thrombosis. *Athanasios Gianoukas (Greece)*
14.12 – 14.24	**4.2**	How Vascular Ultrasound can Help the Prevention or Effective Treatment of Pulmonary Embolism? *Zsolt Pécsvárady (Hungary)*
14.24 – 14.36	**4.3**	Thromboprophylaxis after endovenous procedures: a survey in Hungary. *Gabor Menyhei (Hungary)*
14.36 – 14.48	**4.4**	Mini-invasive technologies (EVLT, RFA, Ultrasound-Guided sclerotherapy) in the treatment of patients with superficial vein thrombosis on the background of varicose veins. *Sergei Shuchkin (Ukraine)*
14.48 – 14.50		*Discussion*

Servier symposium

14.50 – 15.05		Conservative therapy of CVD in the aspect of new RWE study and survey data. *Zsolt Pécsvárady (Hungary)*

Postthrombotic syndrome and crural ulcer *(Chair: Zs Pécsvárady, R Varghese)*

15.10 – 15.22	**5.1**	Left ovarian vein transposition as a simplified surgical approach for the treatment of nutcracker syndrome. *Vladimir Kovacs (Slovakia)*
15.22 – 15.36	**5.2**	How to manage Nut-cracker Syndrome? *Nadjib Bouayed (Algeria)*
15.36 – 15.48	**5.3**	Removal of Spontaneous Palma-arch. *Imre Bihari (Hungary)*
15.48 – 16.00	**5.4**	EVLA in patients with venous ulcers. *Sergei Karniyevich (Belorus)*
16.00 – 16.12	**5.5**	Static Foot Disorders and Atypical Venous Ulcers in the leg. *Roy Varghese (India)*
16.12 – 16-24	**5.6**	Role of medical honey in medicine. *Tanja Rucigaj (Slovenija)*
16.24 – 16.36	**5.7**	Treatment of venous ulcers. *Hakan Uncu (Turkey)*
16.36 – 16.48	**5.8**	"Just a Quick Wound Treatment"- Leg Ulcer Based on Massive Lymphoedema *Tamás Tóth (Hungary)*
19.00 – 22.00		*Gala Dinner*

Saturday 5 October 2024

Keynote lecture *(Chair: I Bihari)*

8.30 – 9.00	**6.1**	New results in lower limb haemodynamics. Sergio Gianesini (Italy)

Conservative treatment *(Chair: S Gianesini, I. Rozsos)*

9.00 – 9.12	**7.1**	Multimodality of Sulodexide. *Gyozo Szolnoky, Alejandro Gonzalez-Ochoa (Hungary, Mexico)*
9.12 – 9. 24	**7.2**	Watch the heart in lymphedema: it varies under compression. *Gyozo Szolnoky (Hungary)*
9.24 – 9.36	**7.3**	Enhancing Wound Healing: Evaluating the Efficacy of Combined Physical Therapies. *Zbigniew Rybak (Poland)*
9.36 – 9.48	**7.4**	The impact of inflammatory markers and obesity in chronic venous disease. May it be inflammation and obesity management a new target in improving treatment outcomes. *Sergiu-Ciprian Matei (Romania)*
9.48 – 10.00	**7.5**	How To Breathe During Strengthening Physical Exercises - Functioning Of The Terminal Valve of the Saphenofemoral Junction During Normal Breathing, Valsalva Maneuvre And Ujjayi Breath *Marian Simka (Poland)*

Poster session (6 min presentation followed by 2 min discussion) *(Chair: M Simka, H Unku)*

10.00 – 10.08	**8.1**	Cerebral venous thrombosis. *Nadjib Bouayed (Algeria)*
10.08 – 10.16	**8.2**	Persistent sciatic vein in a patient with an episode of pulmonary embolism. *Oksana Riabinska (Ukraine)*
10.16 – 10.24	**8.3**	Truncal varicosity in the shape of "S": diagnosis and therapeutic options. *Attila Puskas (Romania)*
10.24 – 10.32	**8.4**	Treatment of venous ulcers with foam sclerotherapy. *Anel Okic (Bosnia - Hercegovina)*
10.32 – 10.40	**8.5**	Using a Totally Implantable Venous Access Device in the Presence of Pre-existing Internal Jugular Vein. *Dimitar Andronov (Bulgaria)*
10.40 – 10.48	**8.6**	Knee Phleboarthrosis Patients' Quality of Life. *Ernest Shcheglov (Russia)*
10.48 – 10.56	**8.7**	Innovative Combined Approach in Endovenous Treatment of Varicose Veins of the Lower *Limbs. Nasrat M. Shah (Bulgaria)*
10.56 – 11.04	**8.8**	Therapeutically management of an obese patient diagnosed with venous leg ulcer, the story of a quick healing – A case report. *Sergiu-Ciprian Matei (Romania)*
11.04 – 11.12	**8.9**	Features of the clinical course and treatment of relapse of varicose veins caused by reflux along the accessory small saphenous vein. *Umarov F.R. (Uzbekistan)*
11.12 – 11.20	**8.10**	An Open-Label First In Man Usability And Safety Investigation With An Intravenous Injection Technique To Deploy Tumescence During Laserablation Of The Great Saphenous Vein. *Michael Akesson (Sweden)*

11.20 – 11.50 *Coffee break*

Aesthetic phlebology *(Chair: Gy Szolnoky, T Rucigaj)*

11.50 – 12.02	**9.1**	Unwanted Veins of the Forearm and the Hand: Treatment Options. *Alexander Flor (Austria)*
12.02 – 12.14	**9.2**	Aesthetic aspects of sclerotherapy, with a special reference to hyperpigmentation. *Éva Szabó (Hungary)*
12.14 – 12.26	**9.3**	Decreasing skin inflammation after venous treatments through the use of Broad Band IPL. *Alvaro Orrego (Chile)*
12.26 – 12.38	**9.4**	Treatment of Periorbital Veins with Long-Pulse Nd:YAG laser. *Rolandas Dagilaitis (Lithuania)*
12.38 – 12.40	**9.5**	Treatment of reticular and spider veins. *Alexander Flor (Austria)*

12.40 – 13.40 *Lunch break*

Balkan Venous Forum Session *(Chair: A Flor, A Puskas)*

13.40 – 13.52	**10.1**	The role of great saphenous vein diameter on endovenous thermal ablation outcomes. *Christos Karathanos (Greece)*
13.52 – 14.04	**10.2**	The role of swab in detecting infection of chronic wounds. *Tanja Planinsek Rucigaj (Slovenija)*
14.04 – 14.16	**10.3**	Innovative Combined Approach in Endovenous Treatment of Varicose Veins of the Lower Limbs. *Nasratullah Mobarakshah (Bulgaria)*
14.16 – 14.28	**10.4**	Perforator vein glue treatment with no immune response. *Imre Bihari (Hungary)*
14.28 – 14.40	**10.5**	Spontaneous iliac vein rupture. *Petrika Gjergo (Albania)*

Endothermal methods *(Chair: L Kabnick, S Shuchkin)*

14.40 – 14.52	**11.1**	Is Compression Necessary Post Thermal Ablation of Truncal Veins. *Lowell Kabnick (USA)*
14.52 – 15.04	**11.2**	Microvawe surgery for varicose veins. *Istvan Rozsos (Hungary)*
15.04 – 15.12	**11.3**	The Role of Perforating Vein Intervention in Enhancing Efficacy of Stripping and Endovenous Laser Ablation for Lower Limb Venous Insufficiency: A Clinical Investigation. *Hasib Mujić (Bosnia - Herzegovina)*
15.12 – 15.24	**11.4**	EVLA with or without Miniphlebectomy? Algorithm or Art? *Olga Pozniakova (Belorus)*
15.24 – 15.36	**11.5**	Cryo and HIFU Cavitation. *René Milleret (France)*

Liquid and foam sclerotherapy *(Chair: E Szabo, Z Rybak)*

15.36 – 15.48	**12.1**	Vulvar Varicose Veins - State of the Art. *Frantisek Zernovicky (Slovakia)*
15.48 – 16.00	**12.2**	Different Natures of Polidocanol Foam. *Alvaro Orrego (Chile)*
16.00 – 16.12	**12.3**	Early Results of the Treatment for Saphenous Incompetence Using "Sandwich" Application of Cyanoacrylate Glue Together with Foam Sclerotherapy. *Marian Simka (Poland)*
16.12 – 16.20		*Discussion*

Closing remarks and awarding prizes (Another Phlebology Prize, v-WIN Prize) *(Chair: S Gianesini, I Bihari)*

Oral presentations are 8 min long, followed by 4 min discussion
Poster presentations are oral, 6 min long, followed by 2 min discussion

ÉRBETEGSÉGEK • *THE HUNGARIAN JOURNAL OF VASCULAR DISEASES*

A Magyar Angiológiai és Érsebészeti Társaság, valamint a Magyar Cardiovascularis és Intervenciós Radiológiai Társaság tudományos folyóirata
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Abstracts

1.1 - WHAT IS THE NOVELTY FACTOR?

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During the following sessions, please evaluate the new practical and theoretical innovations you have heard. Will that modify your mindset or everyday practice? This meeting is devoted mainly to new information so you need to vote according to that.

It is difficult to say what is new and what was published. One of the reasons is that results are usually published several times in different forms. Furthermore, techniques and results are refined in the meantime. So all judgement is rather difficult and subjective. Now in this meeting we would like to measure this, something that is almost impossible to measure. The question is if the participant have ever heard of this or practiced this version or a former one.

We say in general, that everything was known by the ancient Greeks. In spite of that there has been a rather great development since that time. This development made step by step. Inventors of new techniques are recorded although their creations were temporary. We know that different methods have an own shelf life. It is good to know, did we really take a step forward in this meeting or not and who is responsible for that.

We intend to repeat papers which contain notions that are not accepted in everyday practice or not yet. These we regard as new ones. Important question: should I modify my technique according to that paper or not?

I am speaking about technique, but some papers can be evaluated according to other criteria for example in a metaanalysis we can see new results that can change our method.

We would like to know if a paper or a meeting is a didactic or a research one. Papers were presented at former meetings and published in journals and analysed in some other publications, then they are didactic papers. If a meeting repeats and evaluate former studies (metaanalysis, literature review, repeat comparative studies, guidelines) it has its own values. It is good to know what is the ratio between new information and confirmation of former results. Guidelines which are based on former studies are the most important documents of our everyday practice and starting point of our research works. Results of researches require regular renew of guidelines. Now we try to help this renew process.

What is new for you and how much? Topics and ideas are different, judgements are subjective so, the following score system is a suggestion for helping your evaluation:

No modification, no new result, few cases	0
Minimal modification, no new results	1
Minor technical modification, some results	2
Mentioned in guidelines	3
Written publication internationally	4
Written publication only in national J	5
Only oral or poster presentation was before	6
Known but rarely used method	7
Known method but >30% different result	8
Significant modification in technique	9
It was not published yet at all	10

1.2 - HIGHLIGHTS AND CONTROVERSIES IN THE 2024 INTERNATIONAL GUIDELINES ON VTE

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Aims. This International Guidelines on the Prevention and management of VTE published in International Angiology in February 2024 is the 6th update of the guidelines. Its aim is to provide a clear and concise summary of the evidence regarding the efficacy or harm of various methods available to prevent and manage venous thromboembolism (VTE) and to provide recommendations based on such evidence. The document can be downloaded from the European Venous Forum website free of charge.

Methodology of updating the document. Randomized controlled trials (RCTs) and meta-analyses were the main sources used to determine efficacy and harm from different prophylactic and therapeutic methods. Observational studies or results from registries were used only when RCT were not available.

For each section of the document, members of the faculty were provided with the references and the first draft update as well as the opportunity to provide additional data. The updated section was then presented to the entire faculty for discussion and comment. Most changes were made at this time by the faculty. Parts that required major changes or additions were rewritten by a group and were presented again to the faculty for unanimous acceptance or suggestions for further changes. This process was iterative until the point when the entire faculty agreed.

Costs of prevention or therapy. Since this was an international document, not focused on the clinical practice of one country or continent, and because of the variability

in costs in different parts of the world, we have refrained from incorporating consideration of costs or cost-effectiveness in our recommendations. We believe that decisions about costs and resource allocations for healthcare interventions are more appropriately made by individual healthcare systems. However, recognizing that healthcare systems do not have unlimited resources, we have included a section that summarises available cost-effectiveness evidence for primary prevention and treatment of VTE that can be used by appropriate decision-makers.

Outcomes. Evidence is presented for outcomes such as the incidence of asymptomatic DVT at screening, symptomatic DVT or PE, fatal PE, overall mortality and development of the post-thrombotic syndrome (PTS) when available. The decision to use asymptomatic DVT as well as symptomatic DVT or PE is a subjective one based on the following arguments.

(a) Relationship between asymptomatic and symptomatic DVT and PE. The relationship between asymptomatic and symptomatic VTE, including PE has been known for some time. [1-3] Reduction in the incidence of asymptomatic DVT is associated with a reduction of symptomatic DVT and PE. [4-6] Large studies, such as the international multicentre trial, that were powered to study efficacy on fatal PE have demonstrated that reduction in asymptomatic DVT is accompanied by a reduction in symptomatic DVT, clinical PE and fatal PE. [7]

Regulatory authorities have recognized asymptomatic proximal DVT as a valid endpoint of clinical trials and drug evaluation. Relatively few episodes of PE occur in patients with symptomatic DVT because appropriate treatment has been given. The majority of PE including fatal PE occur in patients with asymptomatic DVT. Thus, asymptomatic DVT is an important stage of thromboembolic disease that has not yet manifested itself.

(b) Association between asymptomatic and symptomatic DVT to all-cause mortality. Two studies of thromboprophylaxis in patients hospitalized for acute medical illness have suggested that the presence of asymptomatic proximal DVT is associated with subsequent increased mortality. [8-9] Using the data of the MAGELLAN study, [10] in a post hoc defined analysis it was found that the incidence of all-cause mortality at 90 days was 4.8% in those that had no VTE; it was 11.4% in those with asymptomatic proximal DVT (HR 2.31; 95% CI 1.52 to 3.51; $P < 0.0001$) and 29.2% in those with symptomatic VTE (HR 9.42; 95% CI 4.12 to 21.20; $P < 0.0001$). [11] The authors concluded that asymptomatic proximal DVT is an indicator of clinically important VTE and is a useful outcome for evaluating efficacy in clinical trials of thromboprophylaxis in patients with acute medical illness.

(c) Association between asymptomatic below knee DVT and post-thrombotic syndrome. Demonstration that asymptomatic below knee DVT is associated with subsequent development of PTS in 17% of patients, [12,13] that 20% of asymptomatic calf DVT extend proximal to the knee if untreated [14] and that 17% of symptomatic calf DVT are associated with proximal extension or recurrence [15] also validates adoption of such endpoints for efficacy evaluation. Because PTS results in a marked reduction of quality of life (QOL) and because there is emerging evidence that it can be prevented by DVT prophylaxis, adequate treatment of lower limb DVT and prevention of DVT recurrence by extended prophylaxis, [16] we have devoted an entire section to this topic.

Use of available evidence. Based on the above arguments, we have strived for objectivity in using the evidence present and available rather than absent (very few studies are powered for fatal PE or mortality as an endpoint), which results in many recommendations based on high level of evidence for preventing DVT, PE or recurrent VTE. [17] Such an approach provides clinically important distinctions to guide clinicians concerning prophylactic and treatment regimens.

This document presents the evidence in a concise format and explains how and why practice has changed in the last 30 years. It attempts to indicate not only the magnitude of the effect of different prophylactic regimens in terms of absolute, as well as, relative risk, but also the quality of the studies in terms of the level of evidence: high, moderate, or low. Safety information (clinically relevant and/or major bleeding and other adverse effects) is also provided. We believe that lack of evidence for mortality should not detract from objective evidence of morbidity.

Implementation of guidelines. Creation of guidelines is necessary but not sufficient for implementation. We manage information and actionability in two basic methods: (a) day to day decision making in a busy clinical practice which often demands a more automatic, affect-based, fast, and a narrative process, known as type 1 thinking [18,19] and (b) type 2 thinking which is slow, and probabilistic on which clinicians often rely. [8] Recognizing this bias has helped us implement this guideline.

For facilitated change management a multidisciplinary unit, often including clinicians, quality control and administration shall trigger initiation of the implementation process by measuring the problem. Early institutional empowerment is necessary to allow physician champions to allocate time for feedback and amplification. The problem metrics shall trigger a unified message of urgency. These metrics shall also serve as accountable goals for follow-up after any changes in implementation.

Potential solutions will ideally undergo pilot testing while the main stakeholders share their opinion on potential barriers. Tactics for dissemination may often need to be contextualized to the problem and to the culture of the institution. There are multiple tools to follow an implementation process. DMAIC (Define, Measure, Analyze, Improve, Control) is a frequently discussed problem-solving tool used in Six Sigma, which is also used often in antimicrobial stewardship and other quality control projects. [20] The control mechanism may be assisted by

simplification of pathways of care in the electronic medical system. Alert systems may help facilitate adoption and continuation of the practice changes. [21] Because meaningful use of electronic medical records remains low in many places, implementation teams need to remain resourceful with alternative tactics for system-based modifications. Ultimately, the implementation team will need to repeat the cycle (Plan-Do-Study-Act) of continuous quality improvement.

Patient education. Successful implementation of VTE prophylaxis ultimately requires an alliance with the patient. Education can serve as the catalyst to form this necessary bond and trust. Patients know that anticoagulants can cause bleeding. Therefore, they may ask themselves whether the risk of bleeding is less important than the risk of clotting. Most will not be aware of the multiple rigorous clinical trials that support this pharmacological approach. Patient support groups and foundations dedicated to prevention of thrombosis are worthy collaborators in this mission to implement appropriate VTE prophylaxis. NATF (the North American Thrombosis Forum; www.thrombosis.org) comprises representatives from medicine, science, patients, families, government, and industry who have coalesced to endorse more widespread prevention efforts. As our knowledge of VTE prophylaxis progresses, multiple alliances using a team approach will propel us toward success.

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1.3 - VENOUS GUIDELINES OF THE AMERICAN VENOUS FORUM

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In 2024, the care of patients with venous disease is based on scientific evidence and on consensus statement of experts: they define best practice and make recommendations on appropriate use of diagnostic tests and treatments. The American Venous Forum (AVF), working with the Society for Vascular Surgery (SVS) and the American Vein and Lymphatic Society (AVLS) recently upgraded the clinical practice guidelines for the management of varicose veins (P Gloviczki, PF Lawrence, SM Wasan, MH Meissner et al. J Vasc Surg Venous Lymphat Disord. 2023 Mar;11(2):231-261.e6 and 2024 Jan;12(1):101670.). All guidelines were based on systematic reviews and meta-analyses. Competing interest of the panel was declared, the guidelines underwent peer-review and there was opportunity for public comments.

Part I discussed the role of duplex ultrasound scanning and treatment of superficial truncal reflux. The most important recommendations included that Duplex scan for reflux should be performed on a patient in standing position and that superficial venous interventions are recommended in appropriate candidates instead of a trial of compression therapy. The document suggested either thermal or non-thermal ablation for treatment of the great saphenous vein (GSV) or other axial veins. In C2 patients, it recommended against perforator ablation concomitant with saphenous ablation, as the first line of treatment. The panel also recommended saphenous ablation with concomitant treatment of varicose veins.

Part II focused on compression, on treatment with drugs and nutritional supplements, on evaluation and treatment of varicose tributaries, on superficial thrombophlebitis, superficial venous aneurysms, and on the management of complications of varicose veins and their treatment. Of the available venotonic drugs, micronized purified flavonoid fraction (MPFF) and Ruscus extract was suggested for vein related pain, leg heaviness or sensation of swelling. It was a consensus statement that in asymptomatic patients with varicose veins prophylactic intervention does not prevent progression of venous disease. It was a new and strong statement of the committee that for an average-risk patient who is asymptomatic following thermal ablation of the GSV, routine post-procedural duplex ultrasound to detect ablation-related thrombus extension (ARTE) or DVT is not recommended.

The take home message is that these upgraded SVS/AVF/AVLS guidelines are trustworthy, and evidence based. The guidelines should be among our most important references for up-to-date management of chronic venous disease. We should adopt them to provide the best care to our patients with venous disease in 2024.

2.1 - VENOUS AND LYMPHATIC CIRCULATION IN THE WEIGHTLESSNESS AND SPACE EXPLORATION

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Introduction. Gravity has a constant impact upon human body structure and function. The goal of this overview is to introduce the factors that influence the venous and lymphatic circulation of the astronauts in the weightlessness or decreased gravity environment.

Gravity and weightlessness impact. Under terrestrial gravity, 70% of body fluids reside below the level of the heart. The venous and lymphatic system have the capacity and capability to transport fluid against gravity and tissue pressure gradients via several mechanisms such as venous valves, lymphangion contractility, leg muscle contraction, respiratory and chest wall function creating a "suction effect." In the weightlessness and with the loss of the head-to-foot hydrostatic pressure gradient, astronauts experience a dramatic cephalad fluid shift. Within the first 24-48 hours of flight, fluid redistribution of ~ 2 liters from the legs to the head and neck occurs, and in the first 2 weeks a 10-17% plasma volume reduction, increased cardiac output and stroke volume, and decreased systemic vascular resistance (SVR) of 14-39%. Other observations include a relative decline in RBC total mass described as "Space Anemia," increased oxidative stress and inflammation with the potential to impact arterial function. Adjustments are particularly evident in the venous system with decreased calf venous volume, increased venous compliance, altered venous filling and emptying and internal jugular vein (IJV) distension. One case of an asymptomatic occlusive IJV thrombus has been identified and one additional nonocclusive jugular DVT during performance of an ISS research protocol evaluating IJV function in weightlessness

("microgravity"). The increase in jugular, portal, and femoral vein cross-sectional area during spaceflight confirmed that there was venous blood pooling in the cephalic, splanchnic, and pelvic regions. Based upon a case report of a PICC line placed pre-flight in an astronaut, central venous pressure is known to fall to near zero in weightlessness. The tibial and gastrocnemius veins were found to be decreased in cross sectional area with the proximal fluid shifts and relative intravascular volume decreases. Unbalanced cerebral arterial inflow and decreased venous outflow has the potential to create a relative increased intracranial pressure (ICP) and cerebral parenchymal edema. Spaceflight Associated Neuro-ocular Syndrome (SANS) is a high priority NASA and ESA research topic given that astronauts experience one or more ocular findings, including optic disc edema (ODE), chorioretinal folds, globe flattening, and/or hyperopic refractive shifts manifest in either eye. Clinically concerning levels of SANS are detected in 15% to 20% of astronauts during or after long-duration spaceflight onboard the International Space Station (ISS).

Current lymphatic research data using experimental animal studies found microgravity to be a potent inhibitor of pressure/stretch-stimulated pumping in cervical, thoracic and to a lesser degree, mesenteric lymphatics. These findings presumably are correlated to the cephalic fluid shifts observed during spaceflight. Moreover, space flown rat histology showed inflammation of intestinal epithelial barrier probably due to increased vascular permeability and decreased lymphatic function.

In addition, changes in the Hypothalamic-Pituitary-Adrenal (HPA) and Sympathetic-Adrenal-Medullary (SAM) axes, activated during spaceflight, are characterized by increased levels of stress hormones and the decreased cell mediated immunity, reactivation of latent herpes viruses, as well as the global immune system dysregulation.

Conclusion. The development of space programs brings the opportunity to advance the science and education of venous and lymphatic physiology. The adaptability to the extreme environments of weightlessness in the prospect of moon habitation, and Mars exploration is the sine qua non condition, that we need to understand and control. Further research on the adaptive pathways and restorative countermeasures carries high potential to improve not only our knowledge but also treatment of patients with diabetes mellitus, obesity, venous insufficiency and lymphedema on our planet Earth.

2.2 - DUPLEX IMMEDIATELY FOLLOWING THERMAL TRUNCAL ABLATION SHOULD NOT BE PERFORMED

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25 years ago, radiofrequency ablation of the saphenous vein was introduced as a new and minimally invasive modality for the treatment of superficial venous insufficiency. Three years later, it was followed by endovenous laser ablation. These procedures have revolutionized the treatment of superficial venous insufficiency and have caused a dramatic shift from a highly invasive and morbid inpatient procedure, to a minimally invasive and ambulatory office procedure. Soon after their introduction, a new clinical entity was identified: endothermal heat-induced thrombosis (EHIT). This terminology, a classification system, and treatment strategies were introduced by Kabnick in 2005. Subsequently, advances in technique, along with the discovery of associated risk factors and a better understanding of the pathophysiologic process of endothermal coagulum formation, have reduced the current incidence of EHIT classes 2-4 to between 1%-2%. Still, a paucity of data exists regarding the true incidence of clinically significant pulmonary embolism secondary to EHIT. The authors believe that the rate is less than 0.01%. Furthermore, successful thermal saphenous ablation efficacy in the perioperative period approaches 99%. Despite these excellent numbers, the standard of care is to obtain a duplex ultrasound to evaluate for the presence of EHIT within the first 1-2 weeks post endovenous thermal ablation. Given this information, many of us believe that performing duplex ultrasound in the perioperative period is wasteful and an inefficacious use of limited health-care resources. Thus, the authors advocate against routine duplex to evaluate treatment efficacy and EHIT presence during the perioperative period in asymptomatic patients.

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2.3 - INTERMINGLING OF HEMODYNAMIC AND CELL PATHOLOGY COMPONENTS IN THE PATHOMECHANISM OF THE LOWER EXTREMITY CHRONIC VENOUS DISEASE

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Lasting elevated venous pressure is the mainstay of the lower extremity chronic venous disease. Sustained gravitational load, sustained isometric contraction of leg muscles, missing muscle pump due to sedentary lifestyle, in the later phases valve incompetence in the superficial, deep and perforating veins, reverse function of the muscle pump elevate leg venous pressure in a sustained manner. As a result, cellular phase transitions will happen both in the endothelial and smooth muscle cells of the venous wall. Endothelial cells express contact proteins inducing the attachment, marginalization, and invasion of white blood cells. These in turn secret inflammatory mediators contributing to the pathologic remodeling of the wall. Normal glycoprotein components of the luminal surface will be changed, platelets can attach to the wall, secreting platelet derived growth factor (PDGF), a main component in the typical inhomogenous deformation of the morphology of the wall. Immune proteins, growth factors can be filtrated into the wall because of elevated permeability. Affected endothelial cells will be subjected to apoptosis, finally desquamated. Overstretch of smooth muscle cells induces their phase transition: instead of contractile proteins collagen and matrix metalloproteinases will be expressed and secreted, destroying existing elastic membranes and replacing finer collagen structures. Secreted transforming growth factor beta (TGF_{beta}) induces phase transition in neighboring cells. Secreted cytokines induce further phase transitions and apoptosis, the final picture is the almost acellular media with rough collagen bundles. If the venous segments harboring the valves or the fine structure of the valves themselves are affected, valve insufficiency will be the result. This irreversibly aggravates the situation and induces further propagation of the pathologic process. In addition to elevated pressure, irregular flow also is an important hemodynamic element of the pathological process. Animal experiments in our laboratory have proven that changes in the luminal blood flow induce morphological remodeling of the venous wall to adjust the lumen diameter to the altered flow. During this process, old connective tissue structures will be digested away, smooth muscle cells will divide to form the new force bearing structures of the wall corresponding to the new lumen diameter. While this process goes on, however, the wall will be mechanically weak, less resistant to gravitational load.

The hemodynamic and cellular pathology processes are amplifying each other, they form intermingling positive feed-back circuits, which results in the slow, but irresistible progression of the disease. Beyond a certain point this process is irreversible as the cellular elements that would be needed to restore the normal wall structure are missing from the wall.

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2.5 - POPLITEAL VEIN ENTRAPMENT SYNDROME: REPORT OF THREE RECENT CASES WITH OUR INSTITUTIONAL EXPERIENCE

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Popliteal vein entrapment syndrome (PVES) is a rare subtype of popliteal entrapment syndrome that leads to symptoms of chronic venous stasis. We herein report three recent cases of PVES.

Case 1: A 58-year-old man presented with stasis dermatitis and ulcers. CT revealed an accessory slip of the medial head of the gastrocnemius muscle (GCM) that compressed both the popliteal artery and vein. The popliteal artery was occluded. The patient underwent resection of the anomalous muscle and segmental arterial resection with venous graft interposition. His ulcers were healed, postoperatively.

Case 2: A 74-year-old woman referred with deep vein thrombosis in the left calf. She exhibited a rare type of popliteal anatomy characterized by an accessory slip of the medial head of the GCM that runs between the popliteal artery and vein, and arterial entrapment by the popliteus muscle. After discussing treatment options, the patient was observed conservatively.

Case 3: A 28-year-old man presented with edema and tightness in the left calf. The patient was diagnosed with isolated PVES associated with an accessory slip of the lateral head of the GCM. The patient underwent resection of the anomalous muscle, and his symptoms were relieved postoperatively.

The diagnostic approach and management of PVES, based on our institutional experience, are also discussed in this presentation.

2.6 - WHAT FLOW IS WITHIN THE SOLIDIFIED GLUE?

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Introduction: perforators can be sources of varicose veins and recurrent varicosities. According to recent guidelines perforator vein treatment is indicated (1) if there is advanced CVI or (2) recurrent or permanent varicosity in spite of surgery or (3) if perforator vein is assessed as being pathologic during primary intervention. Recurrent varicosities increases over time and perforator veins as their primary cause is at a high proportion of them. Formerly, perforator vein closure surgeries were demanding interventions both for the patient and the surgeon. Now using endovenous techniques it is much simpler, faster and comes with fewer complications.

Methods: Since April 2020 until January 2024 altogether 1042 perforator veins of 643 patients were treated: 379 were women and 264 men. Most frequently Cockett III, gastrocnemius and anterior perforator veins were operated on. We used VenaBlock (Invamed, Turkey) glue. It is different from the American glue because it flows like water and sets in 5 sec. Technique was rather simple, glue was given with a direct puncture into the lumen of the vein at the level of muscular fascia. The amount was between 0.15 - 0.35 ml, mean 0.22 ml.

Results: Perforator veins were occluded in 86.7% at the 2 week checkup. One special finding was some color spots on duplex ultrasound examination in 98 cases (9.4%). These spots showed some movement but not real pulsation. They did not change during some longer (more than 3 years) follow-ups. No clinical signs or US findings which would hint at deep circulatory disturbances in any case.

Discussion: Other authors also performed glue closure of perforator veins. Some flow within the glue was mentioned by other colleagues in GSV surgery cases. The opinion of Chan et al. is that this is a recanalisation within the glue. Strejceck at al describes this as a porous destruction of the glue and name it as a sieve phenomenon. According to synchronous stream associated with leg compression and lack of flow in lying position we suppose this is caused by porosity of the glue.

Conclusion: Further studies are necessary to clarify flow findings which were seen by others within the GSV closure glue and by us in the perforator vein closing glue.

3.1 - NEW SUPERFICIAL DEVICES FOR TRUNCAL ABLATION UNDERGOING TRIALS

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Past President of the American Venous Forum

We continue to look for improvements in existing superficial truncal ablative devices, however just as important is the development of new devices looking for the Holy Grail or "The Game Changer." Regarding new devices undergoing trial, the following devices encompass all the different new superficial truncal ablative devices:

1. *InVera* – a mechanical only ablative device or mechanical chemical device
2. *Amsel Scure Clamp* – a percutaneous venous occlusion device
3. *Solutio-Tumescent Delivery Device* – a catheter that's primary venous function is to deliver tumescent anesthesia outside the truncal vein within its compartment while carrying a thermal device.
4. *High Intensity Frequency Ultrasound* – high intensity ultrasound venous disruptive technology.

Does one ablative device work for all truncal venous pathology? What is the gold standard? Do we know? As we know, there are a lot of variables? Does one size fit all? What is the ideal device? Is that device one without the need for thermal energy requiring tumescent anesthesia, intravenous instillation of a chemical (sclerosant), internal mechanical only disruptive catheter, or a high intensity frequency ultrasonic energy?

As time lapses, will we continue to improve/develop new devices that will be more efficacious, safe and cost effective than what exists?

3.3 - TREATING VARICOSE VEINS WITH CONSERVATIVE SURGICAL TECHNIQUES: INSIGHTS FROM OUR PRACTICE

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Background. Varicose veins are highly prevalent in the general population, while the increasing incidence of peripheral arterial diseases emphasizes the importance of saphenous-sparing interventions in the treatment of chronic venous insufficiency (CVI). Techniques such as ASVAL and CHIVA offer favorable long-term results, including improved quality of life, and preserve the main venous trunk for potential future grafts.

Methods. This retrospective study included 200 patients (215 lower extremities with varices) who underwent clinical and imaging examinations, followed by saphenous vein preservation surgeries from 2008 to 2024. We analyzed demographic and clinical data according to CEAP classification and assessed the severity of CVI and patient quality of life using VCSS score and ABC-V questionnaire.

Results. The average follow-up period was 7.27±4.1 years. The mean age of patients was 45.37 years (IQR 18–77), with a predominance of women (74.5%). Distribution

according to C class of CEAP classification was as follows: C2 – 56.3%, C3 – 37.6%, C4 – 4.2%, and C6 – 1.8%. Patients presented with various symptoms of CVI and all experienced aesthetic discomfort and subcutaneous varices. Most subjects (79.9%) had multiple complaints, while 20.09% had varicose veins only. The latter have occurred in the great saphenous vein (GSV) system in 93.48% of patients; in the small saphenous vein (SSV) system – in 5.11%; and in both systems simultaneously – in 1.39%. In 32.83% of cases with GSV incompetence venous reflux was also identified at the level of accessory saphenous vein. Reflux patterns were as follows: 28.78% had competent saphenous-femoral junction (SFJ) and GSV trunk; 48.48% had SFJ reflux with a competent GSV trunk; and 22.58% had reflux in both mentioned segments. According to Pittaluga's classification of venous reflux: P1 – 23.88% cases, P3 – 4.47%, P4 – 39.8%, P5 – 31.84%. The preoperative VCSS score averaged 4.57 points (95%CI: 4.07–5.07), and the ABC-V score was 26.81 (95%CI: 22.28–31.34). The average PREST score was 9.42±2.93 points. Main venous trunk was preserved in all cases, with no crossectomy or crossotomy performed. Isolated miniphlebectomy was practiced in 79.06% of cases. CHIVA 1 strategy was used in 0.93% of cases with miniphlebectomy in one case and transcatheter foam sclerotherapy in another. Anesthesia types included intravenous (3.72%), tumescent (44.65%), and spinal (51.62%). The mean operation time was 37.98±15.78 min. No intraoperative complications occurred. One fourth of patients required major analgesics on 1-st POD. The average hospital stay was 3.12±2.12 days. A single case of post-surgery wound complication was resolved conservatively.

*Conclusions.*Our initial experience with saphenous-sparing interventions suggests that these procedures should be more widely adopted. They offer simple operative techniques, accessibility, minimal invasiveness, rapid recovery of patients, minimal postoperative complications rate and improved quality of life. Determining the exact criteria for selecting suitable patients remains the goal of further research.

3.4 - CONCOMITANT MINI PHLEBECTOMY VS. STAGED WITH ENDOVENOUS LASER ABLATION (EVLA)

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Background. Endovenous superficial venous intervention continues to experience massive growth globally and is now widely established as first line care. Endovenous thermal ablation has become one of the standard minimally invasive approach for eliminating the insufficient saphenous veins. Debate continues regarding the timing of adjunctive interventions for superficial varicose tributaries following truncal ablative techniques.

Objective. Here, we explore the debate surrounding mini phlebectomy, focusing on whether it's best performed concomitantly with EVLA or as a staged procedure.

Methods. A systematic search of Medline, Pubmed, Embase, and the Cochrane library for Trials published in this subject were looked for and included. These studies were comparing the outcomes of both concomitant and staged treatments for superficial varicose tributaries as an adjunct to endovenous truncal ablation. The research is supported by many cases operated upon in our practise.

Results. The gained data coalesce a large, heterogenous evidence base, for a widely performed intervention, suggesting that concomitant treatment of truncal and superficial varicose tributaries potentially offers lower rates of re-intervention with similar rates of complications. Furthermore, treatment results in improvements in both disease severity and quality of life.

Conclusion. The choice between concomitant and staged mini phlebectomy with EVLA requires careful consideration of potential benefits and drawbacks. Weighing individual patient characteristics and available evidence is crucial for selecting the most suitable approach. Nevertheless, the optimal strategy might depend on individual factors like vein severity, patient preference, and surgeon expertise. Certainly, the subject requires future well designed trials to definitively address this challenge.

3.5 - OPEN REDO GROIN SURGERY IS STILL A VALID OPTION FOR GROIN RECURRENCE FOLLOWING ENDOVENOUS ABLATIONS

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Introduction/ Objectives. How to deal with varicose vein recurrence especially regarding groin recurrence has hardly been studied scientifically. This audit was performed to assess, long term, a new medial open surgical approach to deal with groin recurrence in the form of remnant incompetent saphenous stumps and incompetent anterior accessory saphenous veins. The latter nowadays more and more common following endovenous treatments using a safety margin.

Methods. In an audit regarding varicose vein interventions at our institution, Sept. 2009 - Aug. 2010, 33/252 interventions were groin recurrence operated by a medial approach by several surgeons. The operating time was 69 minutes in median (35-120). Follow-up with colour duplex was performed after 4-6 weeks, 1 year and after more than 5 years. Quality of life was assessed by the Aberdeen Varicose Vein Questionnaire (AVVQ) answered by the patients before and 1 and 5 years following the surgery. Varicose Vein Severity Score (VCSS) was also assessed before surgery and after by independent observers. The patients´ views on the result were also registered.

Results. The total follow-up for 22/33 patients (67 %) was 69 months (39-75). 30/33 (91 %) were followed for at least one year. No serious complications were registered, and no lymphatic leakage was observed. The AVVQ scores were reduced from 26 down to 12 and 17 respectively (p<.0001). The VCSS was similarly reduced from 7 to 3 at both follow-ups (p<.0001). Most patients were satisfied with the overall long-term result (66 %). After one year 80 % were free from duplex detected groin recurrence and the figure after 69 months was 59 %. The 41% with incompetence was mostly caused by neovascularization although three also had returning stumps.

Conclusions. This audit shows that medial open surgical treatment of remaining saphenous stumps seems to be a valid treatment option that previously has been considered difficult to perform. In a time when more and more stump recurrences are reported after endovenous treatments this technique can become a valuable tool to deal with these recurrences, as an option to the generally recommended but unstudied foam treatment for groin recurrence.

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3.5 - 15 YEARS EXPERIENCE IN LASER CROSSECTOMY

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Introduction: The accepted description of varicose vein laser surgery recommends the treatment of the SFJ, but a 2 cm long junctional part of the GSV is left open. Using classical surgery we found that the most important source of recurrence is a patent SFJ. Now the early results, closure of tributaries, influence of technical modifications and patient factors such as pregnancy and focal dilation of GSV are discussed.

Aims: To decrease recurrency rate after varicose vein laser surgery of the GSV.

Patients: 2966 saphenous vein varicosity cases were treated. The age range was between 14 and 82 years, women:men - 71:29. Treated saphenous veins were: GSV 82.8%, SSV 12.5% and AASV 4.5%. The diameter was between 4 and 32 mm. VCSS 6.3.

Methods: The tip of the laser fibre was placed with US guidance near the SFJ: in the first year 2.0 cm, later 1.0 cm and in the last five years 0.5 cm from the femoral vein. In these cases, more cold tumescent solution (10 ml/cm) was injected around the 3 cm long SFJ part than around the peripheral part (5 ml/cm). The aim of this greater amount was partly to achieve the more complete compression of this section and to cool the generated steam before entering the femoral vein. After this, more laser energy was delivered here (277 J/cm) than to the peripheral part of the saphenous stem (104 J/cm). LMWH was given to every patient for 5 days.

Results: Using this method and its modifications, in 61 % of cases occlusion of the SFJ was flush with the femoral vein. With the introduction of these modifications, our early recurrency rate dropped from 13.8% to 1.2% in the first year. In 58% (1720) of the operated legs could be followed for longer than one year (mean 3.5). VCSS decreased to 2.3. Late recurrent varicosity was found in 166 cases (10.7%). It could be observed that recurrencies were mainly in those cases which are excluded from other studies: (1) pregnancy 33.3% (2) extremely dilated saphenous stems or their segments (>20 mm) 26.7% (3) sporting activity and demanding manual labour 15.5% (4) high BMI>35, 15.1% (5) duplicate saphenous stems 12.5% (6) cardiac decompensation 100%. In 22 cases neovascularisation was the reason for recurrency. There were no thromboembolic complications, only EHIT-1 (more than 2000 cases) and EHIT-2 (16 cases) seen on US.

Conclusions: This modified method was suitable for treating our primary and postthrombotic varicose vein cases with an acceptable recurrency rate (10.7% in 4 years). There were no thromboembolic complications.

4.2 - HOW VASCULAR ULTRASOUND CAN HELP THE PREVENTION OR EFFECTIVE TREATMENT OF PULMONARY EMBOLISM?

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To determine the best treatment of pulmonary embolism, it is essential to use the results of chest CT scan and PESI score. The decission of the treatment options (anticoagulation or lysis) is based on these data and the clinical condition of the patient. If the patient is in a very serious, life-threatening condition the inmediate lysis therapy is essential, however sometimes it has not given adequate results.

Our hypothesis is that when an old, unlysable thrombus fragment so called scarring causes acut life threatening PE, the standard systemic lysis causes further risk for the patient

because of the delay. For these cases the solution has to be the mechanical removal of the embolus either with catheter (penumbra) or surgical way as a first choice. In order not to waste valuable time with “unnecessary”lysis therapy, an early search for the source of the embolus, the structure and the location of the remaining thrombus with

a detailed ultrasound scan of the lower exterimities could help. Unfortunately nowadays it is not part of the guidelines.

No instruction how, when and why is necessary to perform US mapping. Our suggestion is to be the part of the PE diagnostic/therapeutic algorithm the early peripheral venous ultrasound examination, where these special cases could be named as "Pulmonal Embolism from unlysable thrombus" with the recommedation of early mechanical intervention as a first choice and we have to be prepared for these steps.

4.3 - THROMBOPROPHYILAXIS AFTER ENDOVENOUS PROCEDURES FOR VARICOSE VEINS: A NATIONWIDE SURVEY IN HUNGARY

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Endovenous treatment has become dominant for varicose veins worldwide over the past decade. Despite minimal hospital admission time and prompt post-operative ambulation, venous thromboembolism continues to present as a considerable complication after these procedures, nevertheless, uncertainty remains regarding the need for thromboprophylaxis.

A nationwide survey among physicians performing endovenous treatment was carried out to assess the practice of thromboprophylaxis in Hungary. A questionnaire was sent to physicians performing endovenous treatment including questions on pharmacological thromboprophylaxis, compression treatment, follow-up protocols, Duplex ultrasound examinations and management of endovenous heat-induced thrombosis.

The survey revealed that most of the surgeons in Hungary use pharmacological thromboprophyalaxis and compression treatment following endovenous varicose vein treatment, however the timing and duration varies significantly. A prospective randomised controlled trial would be necessary to provide evidence and help guiding the thromboprophylaxis practice in this field.

4.4 - MINI-INVASIVE TECHNOLOGIES (EVLT, RFA, ULTRASOUND-GUIDED SCLEROTHERAPY) IN THE TREATMENT OF PATIENTS WITH SUPERFICIAL VEIN THROMBOSIS ON THE BACKGROUND OF VARICOSE VEINS

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Background: Superficial vein thrombosis (SVT) is considered a more benign condition than deep vein thrombosis (DVT), easily diagnosed by clinical signs and requiring only symptomatic relief. In patients with varicose veins, the pathogenesis of SVT depends on reflux through the superficial veins. Conservative treatment in such cases does not give the desired result. SVT can spread to the deep veins and have a complicated course with pulmonary embolism.

The aim: To study the possibility of using endovasal laser coagulation (EVLT), radiofrequency ablation (RFA) and Ultrasound-Guided sclerotherapy (UGST) to eliminate reflux in patients with acute varicothrombophlebitis during of period of anticoagulant therapy.

Methods: To study the safety and effectiveness of RFA and EVLT, the results of treatment of 232 patients who were operated on from 2013 to 2023 were analyzed. In 179 (77%) cases, thrombophlebitis GSV was observed, in 53 (23%) - of the SSV. In 192 (83%) patients (group A), the proximal border of thrombotic masses was not closer than 10 cm from the SFJ. In 40 (17%) patients (group B), we observed ascending forms of thrombophlebitis, including thrombosis of junctuons (SSV – 17 patients, GSV – 23 patients).

Group A patients were operated on in the next few days after referral. 81 (35%) patients underwent RFA. 151 (65%) patients underwent EVLT. Group B patients received anticoagulant therapy (Xarelto 10-20 mg per day) for 45 days. In the period from 3 weeks to 2 months, we observed recanalization of the proximal sections of the GSV and SSV, which allowed us to perform thermal ablation.

Results: In all cases, a complete occlusion of the veins, which underwent to thermal ablation, was observed. Over a period of 3 to 6 months, the recanalization of areas of veins that were affected by the thrombotic process was observed. 186 (80%) patients underwent UGST of such veins.

Conclusions: RFA Closure FAST and EVLC using a 1470 nm diode laser and 2-ring radial fiber in varicothrombophlebitis of the trunk and tributaries of the GSV and SSV is a safe minimally invasive procedure. According to international consensus, anticoagulant therapy for 45 days is recommended for superficial venous thrombosis. Eliminating reflux during this period with the EVLT and RFA significantly improves the patient's condition and accelerates his rehabilitation.

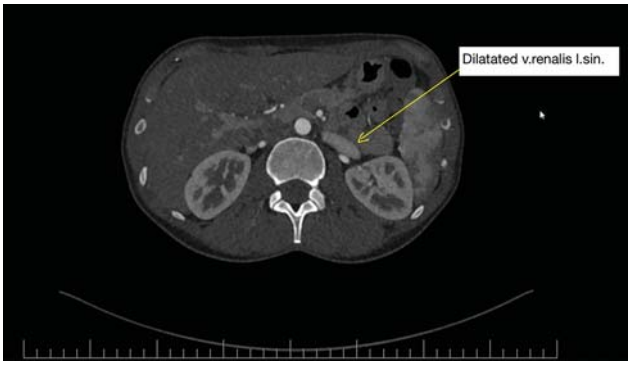

Fig. 1. Dilated left renal vein

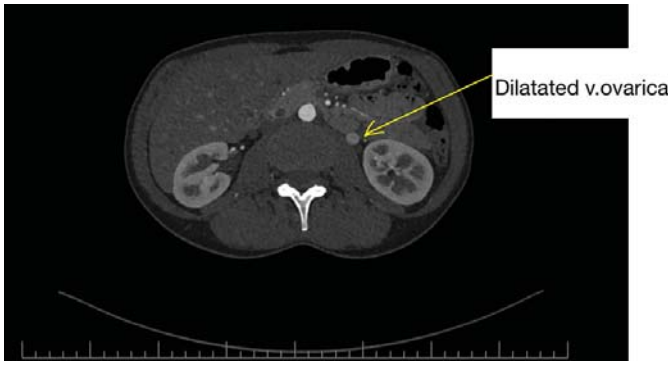

Fig. 2. Dilated left v. ovarica.

5.1 - LEFT OVARIAN VEIN TRANSPOSITION AS A SIMPLIFIED SURGICAL APPROACH FOR THE TREATMENT OF NUTCRACKER SYNDROME

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District Hospital Lučenec, Slovakia

Nutcracker Sy (NCS) is an uncommon syndrome which is represented of symptoms caused by extrinsic compression of the left renal vein between the aorta and superior mesenteric artery. This outflow obstruction of the left gonadal vein is leading to gonadal vein reflux, pain and pelvic varicosities due to the formation of alternative venous drainage pathways and pelvic venous congestion.

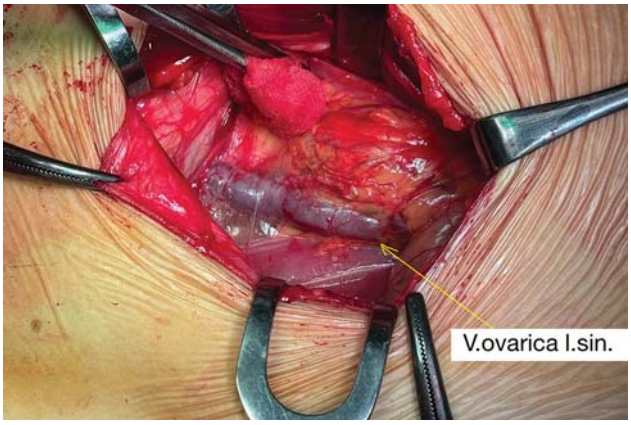

Fig. 3. Dilated left ovarian vein.

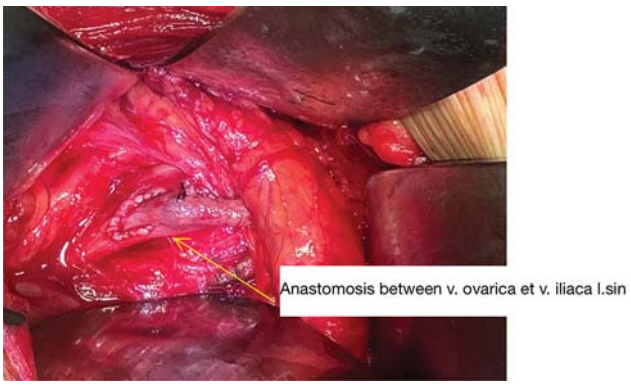

Fig. 4. Anastomosis between the left ovarian and iliac vein.

NCS has been more common in women with a low body mass index (BMI). Symptoms are typicaly developed in the second and third decade and can vary greatly but can include hematuria, flank pain, abdominal pain, pelvic varicosities, pelvic pain and dysmenorrhea in women. NCS is developed also in the men population, and the most frequent symptom is varicocele. Multiple surgery approaches have been described for the treatment of NCS, including both open and endovascular procedures. The goal of all procedures is a decompression of the left renal vein to relieve venous hypertension. Generally, NCS treatment may include nonoperative management, open surgical intervention, and in some instances endovascular stenting. Left ovarian vein transposition to the external illiac vein can be proposed as a first approach if the diameter of the left ovarian vein is sufficient to perform the anastomosis. It is an easily accessible minimally invasive procedure, that achieves satisfactory results without using of foreign material and without a big medial laparotomy approach.

5.2 - HOW TO MANAGE NUTCRACKER SYNDROME?

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Algerian College for Vascular Surgery

Nutcracker syndrome (NCS) or left renal vein entrapment is a compression of left renal vein (LRV) most often between the superior mesenteric artery and the aorta. NCS has a relatively high prevalence in young women. It occurs during pregnancy, during rapid growth in adolescence or weight loss in adults. NCS leads to hyperpressure, reflux, dilation of the ovarian vein, ureteral and pelvic veins, dilation of the kidney and stretching of its capsule with rupture of the small parenchymal veins. Women are more often affected than men, usually tall and thin. Symptoms may be moderate, disappearing spontaneously, especially in children. Symptoms are sometimes severe with left lumbar pain, left unilateral iliac and pelvic pain altering the quality of life and possibly associated with hematuria causing anemia. Doppler ultrasound associated with a phlebo CT scan or phlebo MRI may be sufficient for the diagnosis. About the treatment,

young patients under 18 will be followed and treated with hygiene and dietary rules, in particular weight gain, often sufficient for the treatment of moderate hematuria. In adult woman, a conservative treatment with weight gain and sometimes aspirin may be sufficient for a mild NCS. Surgical treatment or minimally invasive procedures should be indicated if severe symptoms or failure of conservative treatment.

Transposition of LRV on inferior vena cava or transposition of the ovarian vein on the left iliac vein are the most used surgical techniques. Stenting associated or not with embolization of the dilated ovarian vein may be indicated.

Conclusion: a NCS with moderate symptomatology should be benefit from conservative treatment. Disabling NCS, causing anemia and altering the quality of life, surgery will be proposed, knowing that it is not without risk.

5.3 - REMOVAL OF SPONTANEOUS PALMA ARCH

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Objective: 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 93 patients both the spontaneous Palma venous arch (20 cases) and the 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 cases.

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 28 cases (29.4 %) 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 deep axial veins. We prefer to say epifascial and subfascial vascular beds. In these cases there was no deep axial venous circulation but a subfascial collateral system had developed which could maintain the venous drainage of the limb.

5.4 - EVLA IN PATIENTS WITH VENOUS ULCERS

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Purpose: Venous ulcers complicate the course of chronic venous diseases in 1-2% of cases. In the age group over 65 years, the number of venous ulcers increases to 4-5%. Endovenous laser ablation (EVLA) is a less invasive procedure compared to traditional surgical methods, which allows to shorten the rehabilitation period and reduce the risk of complications. The present study aimed at a comparison of the efficacy of isolated endovenous laser ablation (EVLA) and combination EVLA with miniphlebectomy.

Materials or Subjects: The retrospective study from January 2013 to January 2023 included 102 patients (68 women, 34 men) with varicose veins of the lower extremities complicated by venous ulcers. Patients with chronic venous ulcers (>six weeks to <six months duration) were included in this study. The primary outcome was the ulcer healing time; secondary outcomes were the 12-month recurrence rates, the relationship between recurrence and venous reflux, and the complications of the two treatments. The main group included 72 (70.6%) patients who underwent isolated EVLA of the saphenous vein trunks. The second group included 30 (29.4%) patients who underwent a combined operation including EVLA with miniphlebectomy of varicose tributaries and perforating veins outside the zone of trophic disorders of the skin of the lower extremity. The age of patients ranged from 37 to 84 years. All patients underwent EVLA (Biolitec® 1470 nm). Compression therapy (23-32 mm Hg) was used for 6-8 weeks. Patients were followed up weekly till the healing of the ulcer, at one month, three months, and then at six monthly intervals to look for recurrence.

Results and discussion: Healing of trophic ulcers was achieved in 95 cases (93.1%). Moreover, all patients had high activity of reparative processes in the trophic ulcer zone already in the first weeks after the surgery. There was no ulcer recurrence. There were no major infectious complications in the wound. In 7 (6.9%) patients, ulcers did not heal within 6 months after EVLA, shave therapy was performed.

No significant difference was found regarding patient characteristics. The rate of ulcer resolution was not significantly different between isolated EVLA and EVLA with miniphlebectomy groups (93.1% vs. 93.3%). Also, the mean time to complete ulcer healing after endovenous intervention was comparable (iEVLA: 53 ± 37 vs. EVLA with miniphlebectomy: 59 ± 41 days). VCSS was 18.6±3.2 at presentation and 5.7±2.8 at six months of follow-up.

Conclusions: Endovenous ablation of superficial venous reflux is associated with a shorter healing time of venous ulcerations and reduced chances of recurrence. The operation of choice for patients with venous ulcers is isolated EVLA.

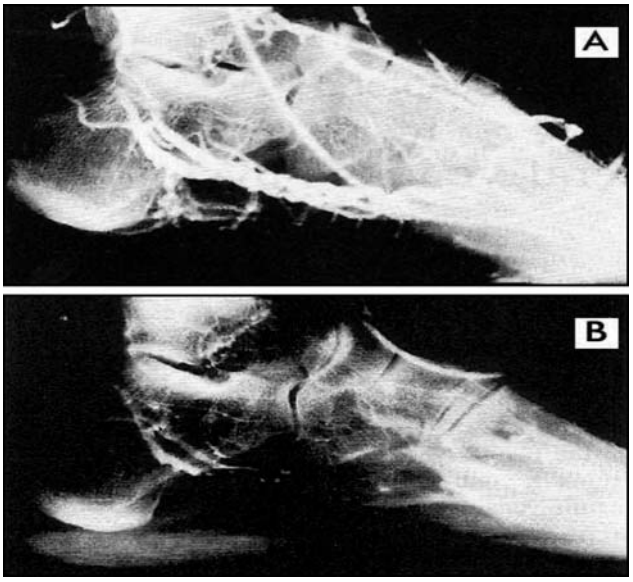

Fig. 1. Angiogram of foot showing venous stasis

Fig. 2. Atypical venous ulcer, Phleboarthroses

5.5 - STATIC FOOT DISORDERS AND ATYPICAL VENOUS ULCERS IN THE LEG

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Introduction: Venous ulcers have become a public health issue because of modern lifestyle, extended sitting position, visceral obesity, metabolic illness, smooth flooring, and non-supportive plastic footwear.

Aim of study was to assess non-healing ulcers and methods aimed at devising methods to speed up ulcer healing. Objective of study was to find a solution to current public health problem affecting nearly 20 to 30 % population in their lifetime.

Methods: Patients with ulcers in atypical ulcer position of the leg were taken up for study. Foot analysis was done using a Harris Mat coupled to Artificial Intelligence software with Gait Analysis capability. This was first demonstrated during IAPMR Meeting in Govt Medical college workshop 2023 December. We now have foot Analysis Report in more than 130 patients. Compression therapy was employed in all patients, ulcer management done as standard protocols, Antibiotic culture was done in all patients Which had MIC report included antibiotics instituted only in those that had infection, inflammation beyond ulcer site. Corrective footwear was given in those patients with foot muscle pump deficiency as determined bu Gait analysis. Pre existing Medical Problems were addressed and optimised

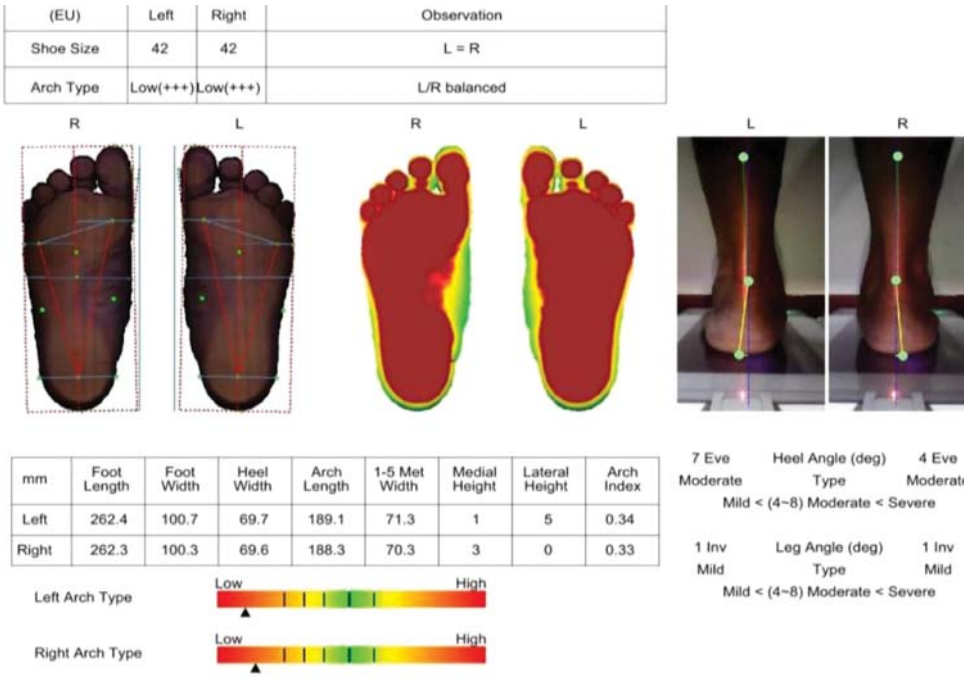

Fig. 3. Computerised foot analysis

Results: As This an ongoing Study with an aim to attain sufficient numbers for statistical analysis specific statistical numbers cannot be of value. However with available data we can safely say that patient who strictly followed protocols had rapid healing. Recurrence continues to be a major issue because of non-adherence to orthotic footwear, and compression stocking.

5.6 - ROLE OF MEDICAL HONEY IN MEDICINE

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Introduction: The medical chestnut honey is not act only as an antiseptic, it also significantly cleanses and debride the wound in the inflammation phase (saturated sugar solution generates osmotic pressure in the wound, stimulating autolytic debridement; glucose oxidase enzyme help activate protease debridement and promotes antimicrobial and anti-inflammatory activity; kynurenic acid destabilises and inhibits biofilm formation), promotes granulation and stimulates epithelialization (high levels of calcium manganese, zinc, potassium, and proline stimulate granulation and epithelization; high levels of polyphenols and flavonoids have antioxidative activity).

Methodes: Study 1: To evaluated effects on healing and pain in 19 C2-3 VLUs (venous leg ulcer) treating with medical chestnut honey alginate verssus 16 C3 VLUs treating with PHMB foam. In the first week of the study, we proved that alginate dressing with medical chestnut honey cleansed the wound bed faster than polyhexanides, which showed its high efficiency in treating infected venous leg ulcers. Study 2: We usually use foams to treat wounds once wound bed is clean, that is, for the granulation phase. In our case study, at 7 VLUs, we used medical chestnut honey foam on ulcers whose wound beds were classified as C3 by Falanga´s classification. Within 14 days, the wound beds of all wounds became B3. Medical chestnut honey foams have also been shown to be suitable for debridement and promoting granulation. Study 3: In case study we treated the patient with VLU on all circumferences of the lower two thirds of the left shin, where wound bed was A2 according to Falanga classification. After 14 days of applied alginate dressing with medical chestnut honey on the half of VLU and hydrofiber dressing with silver to the other half of VLU, the erosions epithelized and healed faster on the side where we used medical chestnut honey.

Results: Medical chestnut honey alginate is an appropriate choice for infected wounds, for fibrin debridement in the inflammatory phase and medical chestnut honey foam accelerates granulation and epithelialization of ulcers.

7.1 - PLEIOTROPIC EFFECTS OF SULODEXIDE

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Sulodexide (SDX), a natural glycosaminoglycane composed of 80% fast moving heparin (FMH) plus 20% dermatan sulfate has arterial and venous antithrombotic, profibrinolytic, *in vitro* and *in vivo* antiinflammatory, beneficial hemorheologic effects and also protects and repairs endothelial layer by glycocalyx restoration and vascular tone regulation, displays senolytic activity and attenuates ischemia-reperfusion injury.

These properties of sulodexide gave rise to test the drug in the adjunctive treatment of SARS-CoV-2 infection.

When the effect of sulodexide was examined in early COVID infection 17.7% of the patients in the sulodexide group required hospitalization, compared with 29.4% in the placebo group ($p = 0.03$). Notably fewer patients with sulodexide required supplemental oxygen (30 vs. 42% [$p = 0.05$]). After 2 weeks of treatment more patients with placebo care had highly elevated D-dimer levels >500 ng/dL (22 vs. 47% [$p < 0.01$]), and higher mean CRP levels (12.5 vs. 17.8 mg/dL [$p < 0.01$]).

Sulodexide also proved to be beneficial in the convalescent phase of COVID infection in terms of the reduction of distinct inflammatory biomarkers. After two months thrombomodulin (25.2±7.9 vs 29.9±14.7 ng/mL [p=0.005]), vWF(232.9±131.2 vs 266±122.3 U/dL [p=0.028) , IL-6 (12.4±12.3vs 15.9±16.2pg/ml [p=0.04]), D-dimer (511.3±407.9 vs 781.4±998.3 ngFEU/mL [p=0.006]) and CRP (8.2±8.8 vs 15.8±19.7 mg/L [p=0.001]) mean levels in the sulodexide group showed improvement compared to the placebo group.

7.2 - WATCH THE HEART IN LIPEDEMA AND LYMPHEDEMA: IT VARIES UNDER COMPRESSION

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Aims: However baseline and posttreatment assessments of lymphedema (LE) are usually restricted to local alterations, cardiovascular systemic impacts should also deserve attention. Theoretically, lymphedema-related fluid retention and its evacuation may affect left ventricular (LV) as the heart's main pump's mechanics which could be detailed by recent three-dimensional speckle-tracking echocardiography. Lower body half compression of bilateral secondary leg LE without relevant cardiac insufficiency gives rise to the examination whether external leg compression may influence LV function measurable with two-dimensional transthoracic echocardiography (2DTTE) for general assessment and three-dimensional speckle-tracking echocardiography (3DSTE) for precise analysis.

Methods and results: Patients with stage 2 leg secondary LE and age- and gender-matched controls were subjected to baseline 2DTTE then 3DSTE was conducted for the assessment of LV rotational mechanics where apical (AR), basal rotations (BR) and LV strains (local myocardial shortening, thickening and lengthening) were measured before and 1 h after the use of compression class 2 (ccl 2) flat-knitted medical compression pantyhoses (MCP) (pressure range: 23-32 mmHg).

2DTTE showed significantly larger LV end-diastolic volume and ejection fraction among LE patients compared with control subjects (108.3 ± 20.1 vs. 98.5 ± 21.7 mL, 69.8 ± 4.8 vs. 65.5 ± 4.3%, respectively) and notably smaller LV end-systolic diameter and posterior wall thickness (28.9 ± 3.5 vs. 31.2 ± 3.4 mm, 8.1 ± 1.0 vs. 9.0 ± 1.7 mm, respectively). The rotational parameters of LE patients did not differ significantly from those of matched controls except significant reduction of LV BR following the application of MCP (-2.70 ± 1.26 degrees after 60-minute compression in patient group vs. -4.28 ± 2.18 degrees of the control group; $P < 0.05$).

Baseline global LV circumferential and area strains and mean segmental LV circumferential strain were higher in lymphedema patients compared to controls. One hour after the use of MCP global and mean segmental LV strains remined nearly unaltered however a remarkable tendency of reduction was seen in LV circumferential strain. LV segmental analysis showed a significant increase in midventricular LV radial, circumferential and area strains whereas basal LV longitudinal and midventricular LV three-dimensional strains were decreased as compared to controls. No changes in regional LV strains could be detected subsequent to one-hour use of MCP.

Conclusions: The application of MCP moderately but significantly decreased LV BR without a remarkable impact on twisting mechanism in LE patients. LE is featured by increased global LV circumferential strain nevertheless MCP altered LV deformation parameters towards the normal range highlighting some beneficial influences on cardiac function.

7.3 - ENHANCING WOUND HEALING: EVALUATING THE EFFICACY OF COMBINED PHYSICAL THERAPIES

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Introduction: Chronic wounds, including those associated with diabetes, pose significant clinical challenges. Innovative approaches integrating multiple physical therapies have shown potential in enhancing wound healing. This study assesses the impact of a novel therapeutic device on cellular proliferation, survival, and overall wound healing efficacy, continuing the research on the impact of physical therapies on wound healing and microbial viability.

Methods: A comprehensive study was conducted from March 13, 2023, to November 30, 2023. The investigation involved exposing cultured mouse fibroblast cells to various treatment modalities such as specific wavelengths of light, gas exposure, and electromagnetic fields. The study included preparing cell cultures, applying treatments, and evaluating cellular morphology and viability using standardized assays. Additionally, microbiological studies were conducted to assess the device's impact on bacterial and fungal biofilms commonly found in chronic wounds.

Results: The findings indicate that:

Short-term Gas Exposure: Short-term exposure improved cellular proliferation, while longer exposure times reduced cell viability. For example, short-term exposure to ozone for 10 minutes significantly improved cell survival, whereas exposure for 20-25 minutes reduced it.

Light Exposure: Different wavelengths of light showed varying impacts. UV light exposure reduced biofilm mass significantly in single-species biofilms of *S. aureus* by 45.9%. However, red light showed no significant adverse effects on cell proliferation.

Electromagnetic Fields: Moderate improvements in cell proliferation were observed with certain frequencies of electromagnetic fields compared to others, with frequencies of 50 Hz and 100 Hz showing positive effects.

Combination Therapies: The combination of these physical modalities was found to be safe, with no adverse

effects on cell morphology or proliferation. Metabolic activity in multi-species biofilms was significantly reduced by combined therapies, indicating potential for improved wound decontamination and healing.

Microbial Biofilm Reduction: The novel therapy method showed substantial efficacy in reducing biofilm biomass and metabolic activity across single, dual, and triple-species biofilms. The most significant reductions were observed with UV light and specific combined therapies, achieving up to 60.5% reduction in dual-species biofilms and notable reductions in metabolic activity and live cell counts.

Conclusion: The study demonstrates the potential of combined physical therapies in enhancing wound healing. Short-term gas exposure, particularly ozone, notably benefits cell proliferation, while UV and red light therapies, along with specific electromagnetic fields, do not adversely affect cellular health. The reduction in microbial biofilms further supports the use of these combined therapeutic approaches as promising tools in regenerative medicine. These findings warrant further research to refine their clinical application and maximize benefits for patients with chronic wounds.

7.4 - THE IMPACT OF INFLAMMATORY MARKERS AND OBESITY IN CHRONIC VENOUS DISEASE. MAY IT BE INFLAMMATION AND OBESITY MANAGEMENT A NEW TARGET IN IMPROVING TREATMENT OUTCOMES?

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Background: Chronic venous disease (CVD) represents a significant medical challenge, particularly in obese individuals. This study focuses on the interplay between inflammation, obesity and CVD, highlighting the pivotal role of inflammatory markers in the disease progression.

Methods: This research was an observational, retrospective cohort study that monitored the variations of serological laboratory parameters correlated with body mass index (BMI) in CVD patients admitted in the Phlebology Department (Emergency County Hospital Timișoara, Romania) between January, 2017 and December, 2023. 619 patients were included in the study. The diagnosis of CVD was established in clinical setting, and was completed by ultrasound examination. The following data were collected: age, body mass index (BMI), basic laboratory tests including complete blood count and inflammatory markers: red blood cell count, white blood cell count with differential (neutrophils, lymphocytes, eosinophils, basophils, monocytes), platelet count, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), fibrinogen; coagulation factors: prothrombin time (in percentages and seconds), international normalized ratio, activated partial thromboplastin time; characteristic markers for muscle tissue: creatine kinase (CK) and CK myocardial band; hepatic and metabolic markers: alanine transaminase, aspartate transaminase and glycaemia. These patients were assigned to three groups according to the stage of the disease, using the clinical aspect of the CEAP classification: Group 1 (mild disease) - included 251 patients in stages C2 and C3; Group 2 (moderate to severe disease) – included 214 patients in the C4 stage; Group 3 (severe disease) – included 154 patients in stages C5 and C6. Subsequently, each group of patients was divided according to the BMI in normal weight patients; overweight patients; and obese patients.

Results: The statistical analysis reveals that the inflammatory markers rise along with the increase of the BMI, reaching high values corresponding to obesity. Both CRP and fibrinogen show an increasing correlation with BMI as CVD severity increases, particularly for CRP. This suggests that systemic inflammation, measured by CRP, is more strongly influenced by BMI in patients with more severe CVD. Furthermore, logistic regression models incorporating age, BMI, CRP, fibrinogen, and absolute neutrophils count (ANC) served as important predictors of CVD severity, offering a valuable tool for risk stratification.

Conclusions: Based on our study, the interplay between obesity, inflammation and CVD severity is evident. Although BMI correlates with CVD severity, it is not an independent risk factor when age and key inflammatory markers such as CRP, fibrinogen, and ANC are accounted for. The significant rise of the inflammatory markers along with the BMI across all CVD severity stages highlights the active involvement of adipose tissue in the inflammatory process. Thus, targeting systemic inflammation may be crucial in managing CVD in obese patients. Additionally, considering the negative impact of systemic inflammation in surgery outcomes, the proinflammatory response related to obesity should be corrected before surgery. Our findings suggest incorporating inflammatory markers into the diagnostic and management strategies for more accurate disease staging and tailored interventions. Recognizing the significance of inflammatory markers in patient evaluation holds promise for personalized management strategies, enhancing diagnostic accuracy, and guiding targeted interventions in obesity-related CVD.

7.5 - HOW TO BREATHE DURING STRENGTH PHYSICAL EXERCISES - FUNCTIONING OF THE TERMINAL VALVE OF THE SAPHENOFEMORAL JUNCTION DURING NORMAL BREATHING, VALSALVA MANEUVER AND UJJAYI BREATH

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Background: Valsalva maneuver is routinely used during strength physical exercises, such as lifting weights or doing sit-ups. This particular breathing technique increases the pressure in the abdomen, and in this way it stabilizes the torso. Still, this high pressure can be transmitted to the lower extremity veins, with potentially pathological effect. Interestingly, yoga practitioners are discouraged from Valsalva maneuver during exercises. Instead, it is recommended to use the Ujjayi (victorious) breath, which consists of unstopped breathing, yet through the narrowed rima glottidis (like during whispering). The aim of this study was to assess vein diameters and valve function in the area of the saphenofemoral junction.

Methods: We examined 10 healthy subjects, without clinical or ultrasonographic signs of lower extremity venous pathology. Diameters and cross-sectional areas of the following veins were measured: femoral vein 2 cm above its junction with the great saphenous vein (GSV); femoral vein at the level of GSV; femoral vein 2 cm distally from GSV; GSV between terminal and preterminal valve; GSV just distally from preterminal valve. We also checked the competence of the terminal and preterminal valves. All assessments were done in the standing body position, during lifting a small weight, and during: a) normal breathing; b) Valsalva maneuver; c) Ujjayi breathing.

Results: In comparison with normal breathing, there were only slight dilatations of the examined veins during both Valsalva and Ujjayi breathing. On average, in comparison with normal breathing, cross-sectional area of the femoral vein increased by 7-9% during Valsalva and 2-4% during Ujjayi. Cross-sectional area of the GSV between terminal and preterminal valve increased by 18% during Valsalva and 15% Ujjayi breath, and cross-sectional area of the GSV distally from the preterminal valve: by 17% during Valsalva and 16% during Ujjayi breath. In all subjects the terminal and preterminal valves were competent and no refluxes were detected. However, Valsalva maneuver was associated with complete closure of the terminal valve, while during Ujjayi breath this valve was opening and closing, following the breathing.

Conclusions: In the standing body position, the veins in the area of saphenofemoral junction are already submaximally dilatated, and both Valsalva and Ujjayi have minimal effect on their diameters. On the other hand, Ujjayi breath allows for undisturbed flow through the saphenofemoral junction, with maintained increased intraabdominal pressure stabilizing the torso, while Valsalva maneuver interrupts this flow, with possible pathological effect in a long-run.

8.3 - TRUNCAL VARICOSITY IN THE SHAPE OF "S": DIAGNOSIS AND THERAPEUTIC OPTIONS

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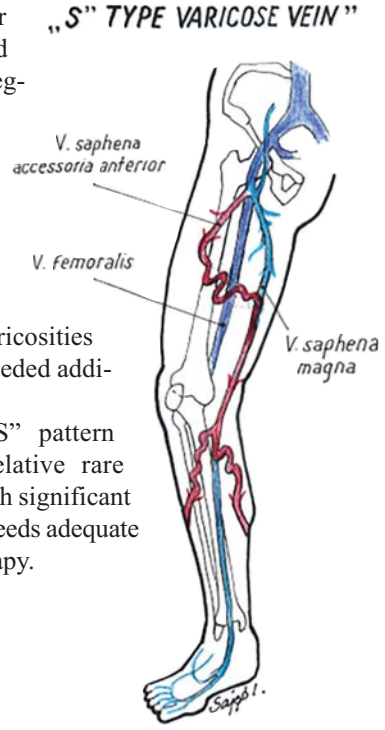
Introduction: This study describes a relative rare form of primary truncal varicosity as concomitant involvement of Anterior Accessory Saphenous Vein (AASV) with escape point at the Sapheno-Femoral Junction and a segment of the Great Saphenous Vein (GSV) which is fed by reflux from epifascial varicose tributaries of the AASV. This pattern was defined as truncal varicosity in the shape of "S"(see attached image).

Methods: In this retrospective study of 2855 cases treated with endovenous laser ablation in our center we found 50 cases with "S" pattern (prevalence 1,7%). The clinical manifestation, echo-anatomy, hemodynamic characteristics, therapeutic modalities and evolution were analyzed. The average follow-up period was 12 months.

Results: We identified two anatomical variants: first-more frequent-with involvement of the GSV above the knee (from mid/inferior thigh) and second with reflux of GSV only below the knee. In both variants the primary source of reflux was at the sapheno-femoral junction with its continuation in the AASV and its epifascial varicose tributaries at the thigh level anastomosing with the GSV which becomes insufficient from the anastomosing point. There was a female predominance with C3 clinical stage of the disease. As therapeutic options limited endovenous ELVES double ring laser ablation of the AASV and of the insufficient GSV segment was performed combined in the same session with foam sclerotherapy and in case applied later at the level of the tributaries. In the follow up period we found recurrency or residual varicosities in 10 % of cases which needed additional foam sclerotherapy.



Conclusions: The "S" pattern trunk varicosity is a relative rare anatomical variant but with significant clinical relevance which needs adequate targeted endovenous therapy.

8.4 - TREATMENT OF VENOUS ULCERS WITH FOAM SCLEROTHERAPY

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Background: Venous ulcers are one of the most common complications in venous insufficiency. It is a chronic and serious illness that requires long-term and expensive treatment. The quality of life is greatly reduced, and the patients often have problems with anxiety and depression. The most common problems are venous perforators that are insufficient and dilated. Insufficiency is usually over 0,8 sec and dilatation over 9 mm. There are many different methods of treating venous ulcers that provide temporary or permanent results. Multi-layer compression is no longer actual because of poor permanent results. Other methods are expensive and difficult to reach. Success in treatment with UGFS (ultrasound guided foam sclerotherapy) is increasing and expanding in practice. It shows good results, it is cheap and widespread.

Methods: We treated patients in a lying and sitting position. We used 3% STS (sodium tetradecyl sulphate). The foam was prepared according to the Tessari method. After treatment we applied a three-layer compression with pressure pads. Compression was mandatory for one month, and later stocking was recommended. We followed up the patients after seven, fourteen, and thirty days, and then every three months. Five patients required additional treatments of targeted vein. Patients used venotonic medicaments before and after treatment. Low molecular heparin was applied before treatment. The patient's willingness to cooperate had a great influence on the treatment results.

Results: We treated nine patients in 2022. Five female and four male patients. The average age was 45,5 years. all patients had insufficiency or dilatation of venous perforators verified by ultrasound. Seven of them had both anomalies. Seven of them had very successful results after being followed up every three months. One patient had no controls and one patient still had venous ulcers. We had minor complications. Two patients had necrotic skin less than one centimeter. Four patients had long term pigmentations and one patient had long term swelling. All complications were treated without permanent consequences.

Conclusions: For the successful treatment of venous ulcers, the selection of patients is very important. No extreme insufficiency of vein perforators, no oversized veins. The correct choice of sclerosing agent, STS was only choice because of previous experience, and the method of administration and application in the vein are very important. Repeated treatments can also improve results. Sometimes we did even three treatments for the same vein! Venous ulcers can be very successfully treated with UGFS.

8.5 - USING A TOTALLY IMPLANTABLE VENOUS ACCESS DEVICE (TIVAD) IN THE PRESENCE OF PRE-EXISTING INTERNAL JUGULAR VEIN (IJV) THROMBOSIS WHEN A TIVAD IS ALREADY IN PLACE IS A COMPLEX SITUATION THAT REQUIRES CAREFUL CONSIDERATION AND MANAGEMENT

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Here are the key points to consider:

Risk of Thrombosis Extension and Embolization: The presence of a thrombus in the IJV can increase the risk of the thrombus extending or embolizing, especially if the TIVAD continues to be used.

Alternative Access Sites: If the IJV thrombosis is significant, using the existing TIVAD might not be safe. Alternative venous access sites should be considered, such as the contralateral IJV, subclavian vein, or femoral vein.

Thrombolytic Therapy: In some cases, thrombolytic therapy may be indicated to dissolve the existing thrombus. This decision should be made in consultation with a hematologist or vascular specialist.

Anticoagulation: Patients may require anticoagulation therapy to manage and prevent further thrombotic events. The type and duration of anticoagulation should be individualized based on the patient's overall health, the extent of the thrombosis, and the underlying cause.

Device Management: If the TIVAD is not functional due to the thrombosis, it may need to be removed or replaced. This decision depends on the extent of the thrombosis and the clinical necessity of the TIVAD.

Infection Control: The risk of infection increases with the presence of thrombosis and a TIVAD. Strict aseptic techniques should be maintained, and any signs of infection should be promptly addressed.

Multidisciplinary Consultation: Involve a multi-disciplinary team including hematologists, interventional radiologists, vascular surgeons, and infectious disease specialists to determine the best approach.

Assessment and Monitoring: Perform regular assessments using ultrasound or other imaging modalities to monitor the status of the thrombosis and the patency of the TIVAD.

Alternative Venous Access: If the existing TIVAD is compromised, consider placing a new TIVAD in an alternative site while addressing the thrombosis in the IJV.

Patient Management: Develop a comprehensive care plan that includes anticoagulation management, monitoring for signs of infection and thrombosis, and educating the patient about symptoms and necessary follow-up care.

*Conclusion:*The presence of a pre-existing internal jugular vein thrombosis with an existing TIVAD requires a careful, multidisciplinary approach to ensure patient safety and effective management. Alternative venous access,

thrombosis management, and close monitoring are essential to mitigate the risks and ensure the continued effectiveness of the patient's venous access.

8.6 - THE SINGLE CENTER INVESTIGATION OF KNEE PHLEBOARTHROSIS PATIENTS' QUALITY OF LIFE

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Objective: The combination of lower extremities varicosity with knee osteoarthrosis is called Phlebarthrosis. It is widespread, extremely in older people. Therefore one of the problems is the decrease of patients' quality of life (QoL). That is why it is very important to evaluate the QoL dynamics, when we assess the treatment results. The research objective was to evaluate the QoL before treatment and its dynamics during the treatment.

Materials and Methods: We investigated 116 patients. They passed the clinical and instrumental examination in order to be included into the investigation. The instrumental examination included knee X-Ray, knee ultrasonography and venous ultrasonography. All examinations were performed before the investigation and in 6 and 12 months after it. Exclusion criteria were chronic arterial insufficiency level. We compared the QoL results with the results of 20 healthy volunteers. The treatment consisted of micronized purified flavonoid fraction 1000 mg daily, non-steroid anti-inflammatory drugs and disease modifying medications (so called chondroprotectors). All the patients strictly continued the pre-investigation scheme of non-steroid anti-inflammatory drugs and disease modifying medications application. The only change was the use of micronized purified flavonoid fraction.

Results: The scores of QoL assessment by using CIVIQ-20 were 47,6±2,9 points in Phlebarthrosis patients and 25,9±1,7 points in healthy patients before the treatment. After 6 months the results in Phlebarthrosis patients group were 37,58±1,74 points and after 12 months they were 33,46±1,72. The same situation was observed when using the KOOS Scale. Before treatment the result was 32,15±9,17 points, 6 months later - 46,29±7,11 points and 12 months later - 55,44±8,03 points. The Lequesne Index was 10,49±1,12 points before the treatment that indicated "severe osteoarthritis", 6 months later it decreased to 9,14±0,97 points and 12 months later it decreased to 7,85±0,83 points indicating "moderate osteoarthritis".

Conclusions: The combination of lower extremities varicosity with knee osteoarthrosis leads to severe decrease of patients Quality of Life. The use of micronized purified flavonoid fraction may increase the Quality of Life. The use of micronized purified flavonoid fraction in such patients may also decrease the severity of knee osteoarthritis from severe to moderate.

8.7 - INNOVATIVE COMBINED APPROACH IN ENDOVENOUS TREATMENT OF VARICOSE VEINS OF THE LOWER LIMBS

Nasrat M. Shah

This presentation explores the modern treatment methods for varicose veins, overveiwing from surgical techniques like ligation, stripping, and phlebectomy, to endovenous ablation methods such as thermal, mechano-chemical, and chemical ablation, and focus on hybrid approaches and combining multiple techniques. Explain about the selection of the most accurate treatment which is based on detailed physical examination, duplex ultrasound and if necesary phlebography to have the exact vein anatomy, diameter, location of the turbulances and source of venous reflux.

The specific indications of different methods like thermal ablations (RFA and laser ablation) which are preferred for straight veins up to 20 mm diameter- the priority of EVLA like crossectomy (more than 20mm in diameter if preferred stripping), mechano-chemical ablation for straight veins up to 12 mm with priority like absence for need tumescent injection, no chance for nerve injuries and comfort for the patients, and chemical ablation for veins with are not straight in any size and perforant veins . Microphlebectomy is suitable for superficial varicose branches.

A case study of a 54-year-old male with significant varicose veins is presented, where a combination of EVLA, MOCA, chemical ablation and microphlebectomy was used. Resulting in successful treatment with reduced recurrence risk and improved cosmetic outcomes.

The advantages of hybrid treatments are emphasized, including reduced complaints, better cosmetic results, minimized recurrence and efficient single-stage procedures.

8.8 - THERAPEUTICAL MANAGEMENT OF AN OBESE PATIENT DIAGNOSED WITH VENOUS LEG ULCER, THE STORY OF A QUICK HEALING. CASE REPORT

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Background: Venous leg ulcers (VLUs) are still a prevalent condition in the Balkans. Importantly, with the prevalence increasing in the elderly and significant negative effects on quality of life due to disability, social isolation, and psychosocial burden, venous leg ulceration will continue to present an important challenge, particularly in light of the expected increase in ageing and increasingly

Fig. 1. **A** – Clinical aspect of the active VLU at admission;
B – VLU epithelised and covered by crust,
clinical aspect after 7 days of treatment;
C – Clinical aspect in the operating room;
D – Great saphenous vein aneurysm, intraoperative picture;
E – Healed VLU;
F – Healed VLU, follow-up image.

obese population. This paper present the therapeutically approach of a morbid obese patient suffering from VLU.

Methods: 55 years old female obese patient (weight = 124 kg, height = 167 cm, BMI = 44.46 kg/m^2) presenting VLU located on the distal third of the right calf, wound size = 8.9/4.8cm (Figure 1A) is admitted in our Phlebology Department (Emergency County Hospital Timişoara, Romania). Duplex ultrasound reveal aneurismally degenerated right great saphenous vein (GSV), with a diameter up to 1.9 cm and venous reflux. Wound debridement was practiced, colloidal silver spray covered by dressings, and compression therapy (Tubulcus - a heelless open-toed elastic compression device knitted in tubular form, Laboratoires Innothera, Arcueil, France), being applied. The wound was daily cleaned with clorhexidine solution.

Results: The wound was closed in 7 days (Figure 1B), surgery being performed then (Figure 1C). GSV ligation (Figure 1D) and stripping, with subsequent phlebectomy was performed. The wound was completely healed in 17 days (Figure 1E). Compression therapy was further recommended, along with phlebotonic medication. No complications were noted at the two weeks, one month and three months follow-ups (Figure 1F).

Conclusions: VLUs closure requires a multimodal approach. Compression therapy should be recommended as the primary treatment to aid VLU healing. Once the ulceration is closed, venous reflux ablation is required in order to prevent the recurrence.

8.9 - FEATURES OF THE CLINICAL COURSE AND TREATMENT OF RELAPSE OF VARICOSE VEINS CAUSED BY REFLUX ALONG THE ACCESSORY SMALL SAPHENOUS VEIN

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Objectives: According to the literature, the accessory lateral small saphenous vein (ALSSV) is one of the forms of the embryonic vein and is a form of angiodysplasia. Anatomically, the vein is located in the split of the muscular fascia lateral to the fascial sheath of the small saphenous vein. Unlike the accessory superficial small saphenous vein (vein of Thierry), it has a straight trunk over a length of 10-20 cm and runs inside the fascia.

Our aims were to evaluate the clinical features of the course of chronic venous insufficiency caused by recurrent reflux along the ALSSV and ASSSV (vein of Thierry). To compare methods for eliminating reflux according to the ALSSV, to evaluate the possibilities of using cyanoacrylate obliteration in order to improve the results of treatment of the disease.

Material and methods: For the period 2022-2023, the results of treatment of 77 patients with recurrent varicose veins of the lower extremities caused by reflux ALSV were analyzed. There were 22 patients male and 55 female. The average age was 34.6 years. All patients, in addition to routine examination methods, underwent ultrasound scanning of the venous system of the lower extremities. Ultrasound examination of patients revealed prolonged reflux of more than 0.5 seconds along the trunk of the ALSV and ASSV. The average diameter of the ALSV trunk was 0.65 cm, the length of the vein was 12.6 cm. According to CEAP, patients were distributed: C1 S - 11%, C 2 S - 45%, C 3 S - 28%, C 4 S - 14%.

In order to eliminate reflux along the ALSSV, 32 patients underwent EVLK ALSSV, 20 patients underwent adhesive obliteration (CAC), and 25 patients underwent echo-controlled microfoam sclerooobliteration (UGFS). All patients were examined on the 7th day, 30 days, 6 and 12 months - after operation. During the examination, the relief

of symptoms of chronic venous vein disease and obliteration of the target vein according to ultrasonography were assessed.

Results: On the 30th day, all patients showed relief of symptoms of chronic venous insufficiency of lower extremities without the use of phlebotonics; occlusion of the target vein was 100%. In 52% of cases, in patients who underwent echo sclerotherapy, complete recanalization of the target vein was noted with the resumption of the chronic venous insufficiency of lower extremities clinic. Patients who underwent EVLK ALSSV for 6 months. in 100% of cases, obliteration was noted at 12 months. complete ablation of the target vein; no symptoms of chronic venous insufficiency were noted. In patients who underwent adhesive obliteration of the ALSSV, clinical and anatomical success was observed in 95% of cases. Post-procedural pain caused by a phlebitis-like reaction was more observed in patients who underwent NTNT obliteration methods; paresthesia was observed in patients after EVLO.

Conclusions: In the presence of reflux along the trunk of the ALSSV, patients experience severe symptoms of CVI, which are relieved during the period of using compression and phlebotropic therapy. Recurrence of varicose veins is often associated with an insufficiently complete initial examination of the patient, and one should always remember the presence of perforating veins of the popliteal fossa and atypical varicose veins. Adhesive obliteration may be proposed as a method of choice for the treatment of CVI caused by reflux along ALSSV due to its relatively simple implementation, less paresthesia in the postoperative period and reliable obliteration of the target vein.

9.2 - AESTHETIC ASPECTS OF SCLEROTHERAPY WITH SPECIAL REFERENCE TO HYPERPIGMENTATION

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Holistic approach is increasingly important in aesthetics. Not only the face, neckline and décolleté, but also the legs are an important part of the attractive look. In addition to correct treatment, aesthetic phlebology aims to use minimally invasive methods. Teteangiectasia, reticular varicosities can be treated succesfully with sclerotherapy. The chance of complications can be significantly reduced by careful treatment. Aesthetically, hyperpigmentation is an unpleasant complication. One cause of increased pigmentation is inflammation caused by the sclerosing liquid. Postinflammatory hyperpigmentation is a result of the increased melanogenesis iniciated by enhaced inflammatory citokine production. The other mechanism of hyperpigmentation is the haemosiderin content of the tissues. Vessel wall may be damaged during treatment, and haemosiderin, the decomposition product of haemoglobin may accumulate in the tissues. Inflammation can be reduced by applying a small amount of sclerosing material to one area, treating the inflammation immediately after treatment with an anti-inflammatory creams and cooling. It is recommended to use the smallest needle still appropriate for the treatment of the vessel. It is also recommended the lowest but still effective concentration of sclerosant to use.

For the treatment of hyperpigmentation melanogenesis-reducing agents can be used e.g. azelaic acid, kojic acid. Haemosiderin accumulating in the tissues can be treated using transdermal lasers e.g. pulsed dye laser, Nd:YAG laser. The presentation will also cover recent research results that may provide even more effective treatment initiatives in the future.

9.4 - TREATMENT OF PERIORBITAL VEINS WITH LONG-PULSE ND:YAG LASER

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Objective: Periorbital veins (POVs) are a common cosmetic concern. Long-pulsed 1064 nm Nd:YAG laser can damage vessels with higher diameters and penetrate to a deeper level than other laser therapies. We evaluated the effectiveness of a treatment with a 45 millisecond 1064 nm Nd:YAG laser in the treatment of unwanted periorbital veins.

Methods: 52 patients were treated with long pulse ND:YAG laser from 2021 till 2024 with unwanted periorbital veins. Vein diameter was measured before the treatment and was between 1mm and 3mm. Contactless cooling was used in all treatments. If necessary, treatment was repeated after 3 weeks.

Results: For 43 patients great aesthetic outcomes was reached after one session. 7 patients were treated 2 times and 2 patients needed 3 sessions. Results showed that the long-pulsed 1064 nm Nd:YAG laser is a safe and very good option for the treatment of unwanted periorbital veins measuring up to 3 mm in diameter.

Conclusion: Long-pulsed 1064 nm Nd:YAG laser is a valid treatment option for periorbital veins with great long lasting aesthetic outcomes and minor side effects, but the procedure is almost always accompanied by moderate tolerable pain.

10.2 - THE ROLE OF SWAB IN DETECTING INFECTION OF CHRONIC WOUNDS

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Aim: The aim of this study was to compare swab and biopsy of chronic venous wound infection for microbiology culture results. Swabs are not invasive and easy to perform. However, they are believed to capture microorganisms from the surface rather than microorganisms that have invaded tissue.

Methods: At 28 patients in period of 22.1.2018 – 18.11.2019, swab (Levin technic) and then 0,2 cm punch biopsy were taken from infected venous leg ulcer from the same place at Dermatovenerology Clinic at University Medical Centre Ljubljana.

Results: For the discovery of pathogen bacteria, 19 wounds (67,9%) showed identical culture results. In 9 wounds (32.1%) swab and biopsy did not show identical culture results, there was difference in one isolate. Most frequently identified organisms were *Pseudomonas aeruginosa, beta-haemolytic streptococci group B* and *Staphylococcus aureus.* For these organisms there was 2 wounds (7.1%) that did not show identical culture results.

Discussion: It was concluded that swabs and biopsies, taken from the same location tend to yield the same culture results, even more for frequently isolated microorganisms. Swabs may be considered as an initial diagnostic of wound infection, but with the awareness that neither biopsy nor swab can consistently identify all microorganisms present in the wound.

10.4 - PERFORATOR VEIN GLUE TREATMENT WITH NO IMMUNE RESPONSE

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Introduction: Glue, which is used in varicose vein surgery is N-Butyl-Cyanoacrylate. It is available in different countries under different brand names. Since 2011 it has been introduced into varicose vein surgery. We heve been using it since 2016. Special complications can happen following glue intervention they are immune responses. Early ones are Typ I and Type IV hypersensitivity and late reaction is granuloma formation. Early reaction appears as a superficial phlebitis which can be seen in 10-20% of GSV interventions. Some studies were published about its usage for perforator vein interruption, which is done by us as well.

Methods: Since April 2020 until January 2024 altogether 1042 perforator veins were treated. Most frequently Cockett III, gastrocnemius and anterior perforator veins. We used VenaBlock (Invamed, Turkey) glue. It is different from the American glue, it flows like water and sets in 5 sec. The implementation technique was rather simple, glue was given as a direct puncture into the lumen of the vein at the level of the muscular fascia.

Results: Perforator veins were occluded in 86.7%. There were no immune or inflammatory complications at the site of perforator closures. It is not known exactly why we didn't see any such complications. Our hypotheses are: (1) much less amount of glue is used than for GSV closure, (2) it was injected under the fascia level, with no connectio to the subcutaneous layer. May be some further factors had some influence on it as (3) combination with laser surgery on the saphenous stem, (4) usage of anticoagulant or (5) firm, multilayer compression of the leg. There were no clinical signs or US findings which would hint at deep circulatory disturbances in any case.

Conclusion: It seems perforator glue surgery can be performed with very low risk. It is surprising that we didn't experienced any immune response. It would be good to know how could we prevent immune responses in GSV cases as well.

10.5 - SPONTANEOUS ILIAC VEIN RUPTURE. CASE REPORT

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Introduction: Spontaneous iliac vein rupture resulting in a retroperitoneal hematoma is an extremely rare entity with less than 50 cases reported in literature since 1961 and can present as a life-threatening emergency. There is often a delay in diagnosis due to atypical clinical presentation and lack of precipitating factors.

Case description: A 57-year-old female presented to the emergency room due to a syncopal episode and left-sided groin pain. She referred left leg swelling starting 5 days ago

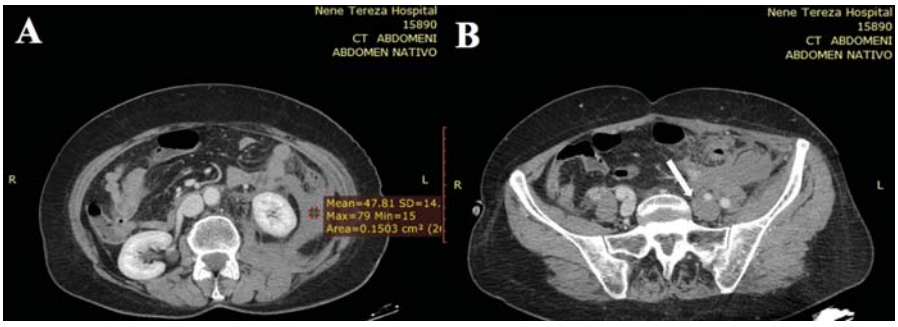

Fig. 1. Contrast-enhanced computed tomography showing retroperitoneal hematoma (A), distention and thrombosis of left common and external iliac veins (B)

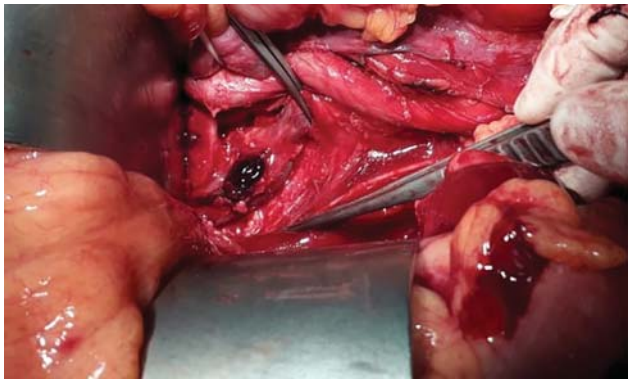

Fig. 2. Intraoperative picture of the surgical procedure after hematoma evacuation showing the point of bleeding in the left external iliac vein with thrombus inside the vein

that she neglected. The patient had no recent history of trauma. On physical examination, the patient was pale, tachycardic, with BP 80/40 mmHg and left inferior limb swelling. Abdominal examination revealed tenderness during light palpation of left lower quadrant. Laboratory tests were remarkable for hemoglobin 6.5 mg/dl, hematocrit 19%. Work-up with contrast-enhanced computed tomography revealed a retroperitoneal hematoma (fig. 1, A), distention and thrombosis of left common and external iliac veins (fig. 1, B) without definite evidence of arterial bleeding. The patient was taken in the operating room, where a rupture of the left external iliac vein was identified with fresh thrombus inside the vein (fig. 2). We performed hematoma evacuation, venous thrombectomy using the milking technique and a Fogarty balloon catheter, and primary suture repair of the injury. Enoxaparin was started after the intervention. The postoperative course was uneventful and the patient was discharged ten days after surgery on oral anticoagulation.

Discussion: Although spontaneous rupture of the iliac vein is rare, it is a vascular emergency and should be considered in the differential diagnosis in a patient who has sudden-onset lower abdominal pain, or leg pain and hypovolemic shock. There is a clear predominance in middle-aged females and on the left side and a probable association with thrombophlebitis. The mainstay of treatment is laparotomy. Early diagnosis, prompt resuscitation and repair of the vein can lead to an excellent result.

11.1 - IS COMPRESSION NECESSARY POST THERMAL ABLATION OF TRUNCAL VEINS

Lowell Kabnick
Past President of the American Venous Forum

This is a controversial subject; depending on what you read and what thought leaders you follow will determine your choice. SVS, AVF, AVLS, and UIP guidelines state:

Guideline 1.1: Compression after thermal ablation or stripping of the saphenous veins. When possible, we suggest compression (elastic stockings or wraps) should be used after surgical or thermal procedures to eliminate varicose veins. [GRADE - 2; LEVEL OF EVIDENCE - C]

Guideline 1.2: Dose of compression after thermal ablation or stripping of the varicose veins. If compression dressings are to be used post procedurally in patients undergoing ablation or surgical procedures on the saphenous veins, those providing pressures >20 mm Hg together with eccentric pads placed directly over the vein ablated or operated on provide the greatest reduction in postoperative pain. [GRADE - 2; LEVEL OF EVIDENCE - B]

Guideline 2.1: Duration of compression therapy after thermal ablation or stripping of the saphenous veins. In the absence of convincing evidence, we recommend best clinical judgment to determine the duration of compression therapy after treatment. [BEST PRACTICE]

Guideline 3.1: Compression therapy after sclerotherapy. We suggest compression therapy immediately after treatment of superficial veins with sclerotherapy to improve outcomes of sclerotherapy. [GRADE - 2; LEVEL OF EVIDENCE - C]

Guideline 3.2: Duration of compression therapy after sclerotherapy. In the absence of convincing evidence, we recommend best clinical judgment to determine the duration of compression therapy after sclerotherapy. [BEST PRACTICE]

Guideline 4.1: Compression after superficial vein treatment in patients with a venous leg ulcer. In a patient with a venous leg ulcer, we recommend compression therapy over no compression therapy to increase venous leg ulcer healing rate and to decrease the risk of ulcer recurrence. [GRADE - 1; LEVEL OF EVIDENCE - B]

Guideline 4.2: Compression after superficial vein treatment in patients with a mixed arterial and venous leg ulcer. In a patient with a venous leg ulcer and underlying arterial disease, we suggest limiting the use of compression to patients with ankle-brachial index exceeding 0.5 or if absolute ankle pressure is >60 mm Hg. [GRADE - 2; LEVEL OF EVIDENCE - C]

I will review the American guidelines along with the European Society for Vascular Surgery. Additionally, I will solicit an audience poll.

1.Lurie F, Lal BK, Antignani PL, Blebea J, Bush R, Caprini J, Davies A, Forrestal M, Jacobowitz G, Kalodiki E, Killewich L, Lohr J, Ma H, Mosti G, Partsch H, Rooke T, Wakefield T. Compression therapy after invasive treatment of superficial veins of the lower extremities: Clinical practice guidelines of the American Venous Forum, Society for Vascular Surgery, American College of Phlebology, Society for Vascular Medicine, and International Union of Phlebology. J Vasc Surg Venous Lymphat Disord. 2019 Jan;7(1):17-28. doi: 10.1016/j.jvsv.2018.10.002. PMID: 30554745.

11.2 - MICROWAVE SURGERY FOR VARICOSE VEINS

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Background: In the last 15-20 years, traditional venous surgical procedures have been supplemented in the early period by thermal radiofrequency techniques, then laser technologies, and now the MICROWAVE methods. I was the first - outside of China to use the microwave technique for endovenous ablation.

Methods: Venous -1.(V-1): Between December 2018 and December 2019, with 20 patients (CEAP III-VI) we used Microwave Vein Ablation System (ECO) during surgery on one limb and on the other we performed surgery with laser (Biolitec) technique EVLA. Description of Duplex Control UH for all surgeries. At 2 weeks postoperatively, a questionnaire was completed to determine the outcome of the two limbs (pain, tightness, bleeding, sensory disturbance) and to indicate possible lateral differences.

Venous -2. (V-2.): Between January- 2020 and February 2023, another 58 patients (surgery of both legs in 23 patients) underwent surgery of legs 81 (CEAP IV-VI.) Using the Microwave technique. The follow up research of the patients are still in progress.

V1+ V2 group: In December 2022, we conducted a patient satisfaction survey.

Operative patients filled out questionnaires online.

Results: In the case of the first 20 patients, the effectiveness of the two limbs was determined based on the ultrasound finding and the patient's physical signs - pain, tightness, bleeding, sensory disturbance. For both methods, 100% closure without reflux in the two- and 12-week, neither the one-year long cases was not significant in either parameter in the early period between the two methods. In the second 58 patients, this did not change significantly but there was a decrease in bleeding and tightness. The results of the survey after venous ablations: More than 40% of the patients had complaints before surgery in the evening - at night. The reduction in pain before surgery and nocturnal spasms is the most noticeable.

Only 4% of the patients considered the view before the operation to be acceptable.

95% considered their condition after surgery to be better - 4% considered it unchanged.

In their work and everyday life, 84% are not affected by the condition of their feet in any way.

And- 10 questions and 11 answers- in the presentation.

Q1-Q2.: why microwaves are better and why they are not, if we compare them to lasers?

Q3-Q4.: why microwaves are better and why they are not, if we compare them to RF?

Q5-Q6.: why microwaves are better and why they are not, if we compare them to classic stripping method?

Q7.: WHAT is the solution for veins with a diameter greater than 2 cm?

Q8.: HOW to bend into the side branches of the larger vein?

Q9.: What is the difference in the postoperative period?

Q10.: DOES THE BEST SOLUTION EXIST?

Conclusions: Based on the comparative tests, it can be concluded that in all respects - efficiency, safety, comfort - in practice the new method corresponds to the solutions based on the thermal effect. With the development of the method, it is increasingly clear that the microwave solution can be the technique of the future (not only in tumor ablation, but also in the treatment of venous and hemorrhoidal diseases).

11.3 - THE ROLE OF PERFORATING VEIN INTERVENTION IN ENHANCING EFFICACY OF STRIPPING AND ENDOVENOUS LASER ABLATION FOR LOWER LIMB VENOUS INSUFFICIENCY: A CLINICAL INVESTIGATION

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Introduction: Perforator veins serve as conduits linking superficial veins with deep veins by penetrating the deep fascia of muscles. Pathological perforator veins have a reflux greater than 500 ms, and diameter larger than 3.5 mm.

Objective: To determine that one of the reasons for the large number of recurrences in stripping is the non-treatment of perforating veins.

Patients and methods: In this study we examined two groups of patients and measured the perforator vein characteristics: diameter, insufficiency, arrangement of perforators and monitored the amount of energy and time spent in EVLA treatment of perforators in both groups of patients. The placement of lower leg perforators referred to the front, lateral and posterior sides and the height to the proximal, medial and distal third of the lower leg. The first group in which stripping and varicotomy were performed some time ago. The second group did not have previous operations on the venous system of the lower extremities. The groups consist of 70 patients, who were followed for a year after the treatment.

Results: Result shows that the insufficiency of the perforators is statistically greater in the first group and that the consumption of energy and time for perforator treatment in the second group is lower and the number of ReEVLA is lower one year after the treatment.

Conclusion: To reduce the number of complications and patients' dissatisfaction with the treatment, it is necessary to treat insufficient lower leg perforators with EVLA treatment along with VSM and VSP EVLA treatment.

11.4 - EVLA WITH OR WITHOUT MINIPHLEBECTOMY? ALGORITHM OR ART?

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Purpose: To improve the immediate and long-term results of treatment of patients with varicose disease. To determine the optimal combination of the endovascular thermal method with miniphlebectomy or without miniphlebectomy for various types of varicose disease.

Materials or Subjects: A retrospective study (2012-2022) analyzed the results of treatment of 287 patients (women - 161, men - 126) with varicose disease. The age of the patients ranged from 27 to 84 years. Of all treated patients, 4 groups of 40 patients were identified according to the Hach classification, depending on the level of reflux in the great saphenous vein. EVLA was performed using a 1470 nm diode laser and radial 1Ring/2Ring fibers, LEED no greater than 80 J/cm and laser power of 8–10 W. The intervention was performed under local anesthesia with mandatory intraoperative ultrasound control. At the first stage of treatment, isolated thermal obliteration of the saphenous vein was performed. Patients were evaluated clinically and using duplex ultrasonography at 10 days and 1, 3, 6 and 12 months after EVLA to assess technical and clinical success, the incidence of complications, and the need for further treatment (phlebectomy/ sclerotherapy).

Results and discussion: For varicose disease according to Hach 1, 16 (40%) patients were satisfied with isolated EVLA; additional treatment (miniphlebectomy and/or sclerotherapy) was required in 24 (60%) patients. In the Hach 2 group, 25 (62.5%) patients were satisfied with isolated EVLA; additional treatment was required in 15 (37.5%) patients. In the Hach 3 group, 28 (70%) patients were satisfied with isolated EVLA; additional treatment was required in 12 (30%) patients. In the Hach 4 group, 37 (92.5%) patients were satisfied with isolated EVLA; additional treatment was required in 3 (7.5%) patients.

Conclusions: Performing EVLA isolated or in combination with miniphlebectomy and sclerotherapy can improve the results of treatment of patients with varicose disease. If the GSV is incompetent according to Hach 1, we recommend simultaneous EVLA with miniphlebectomy. For varicose veins according to Hach 2, it is possible to perform EVLA of the GSV in combination with or without miniphlebectomy. If the GSV fails according to Hach 3, we recommend isolated EVLA of the GSV, with evaluation of the treatment outcome after 3 months. For varicose veins according to Hach 4, we recommend isolated EVLA.

11.5 - UPDATE ON CRYO-SURGERY AND CAVITATION HIFU FOR VARICOSE VEINS ABLATION.

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***Veinsound , Lyon*

Introduction: 4 years ago we presented 2 emerging techniques aimed at improving surgical and non-surgical treatment of superficial venous insufficiency: where are we now?

CRYOTHERAPY is based on probes of different length and diameters, adapted to the vein treated, whose tip is cooled on 1 to 5 cm by expansion of a gas: CO_2 or N_2O. Tempeatures of minus 70° to minus 90 ° are obtained.

3 techniques of vein ablation are possible:

- *Cryo- Fibrosis* is a Thermal Non Tumescent technique : a 5 cm cooled tip probe catheterizes the vein, up to the junction. It is retracted sequentially, 5 cm for each cycle of 40 seconds freezing.Veins up to 8 mm can be ablated .

- *Cryo-Stripping* is used for larger trunks. The probe is inserted in the vein, tip is cooled to stick the wall, then the probe is gently pulled out, invaginating the varicose vein. The tributaries are removed on their first centimeters, which may explain the low recurrence rate oberved in our practice.

- *Cryo-Phlebectomy* uses needle-probes under ultrasound guidance. Once the probe is in place, tumescent anesthesia is injected. The probe is cooled and removed with the varicose paquet. Advantages are: re-sterilisable device - cost for the clinic is lower than with heating techniques. No risk of burns, no post-operative pain. No tumescence for cryo-fibrosis, it is thus a Thermal Non Tumescent method. These techniques are in clinical use in our instutution.

CAVITATION HIFU is a non-thermal biological effect of High Intensity Focused Ultrasound. In our application, cavitation generates microbubbles in the blood, from the dissolved gases which are present in small quantities. We use high ultrasonic energy: Kilowats in a very short time, microseconds. The bubbles implode rapidly, the energy emitted in this process destroys the endothelium of the vein and damages the media, leading to obliteration and fibrosis of the vein. This process is very similar to what is observed in foam sclerotherapy, but totally non-invasive and without any injection of chemicals. The equipment is similar to an echograph, the probe combines an imaging array of cristals with 4 high-intensity emitters of theapeutic ultrasound. Animal studies have been performed, clinical studies were delayed by the pandemia, but a pilot study is scheduled at the end of the year.

12.3 - EARLY RESULTS OF THE TREATMENT FOR SAPHENOUS INCOMPETENCE USING "SANDWICH" APPLICATION OF CYANOACRYLATE GLUE TOGETHER WITH FOAM SCLEROTHERAPY

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Background: This is a retrospective analysis of the results of treatment for varicose veins using cyanoacrylate glue and foam sclerotherapy during the same procedure. This method allows for reduction of amount of glue needed for the vein closure, and minimizes the risk of granuloma formation and allergic reaction related to the epifascial administration of cyanoacrylate.

Methods: This technique was used in 83 patients, 103 interfascial veins (great saphenous vein, small saphenous vein, anterior accessory saphenous vein, Giacomini vein, or interfascially located neovascularizations) were managed. Maximal diameter of the target veins was 8-20 mm. Vein closures were performed with the Venex cyanoacrylate glue and 1-3% polidocanol foam. Cyanoacrylate glue was injected into the most critical locations, or most severe dilatations of saphenous vein. Maximal volume of the glue administered during the procedure was 1.0 mL, usually it was 0.8-0.9 mL. The remaining unclosed segments of the target vein and epifascially located varicosities were managed with foam sclerotherapy. All procedures were done under ultrasonographic control, though direct percutaneous punctures of the target veins. Follow-up were scheduled 1-3 weeks after the procedure. If revealed, unclosed segments of the target veins were obliterated at these follow-up visits, with glue and/or sclerotherapy.

Results: There were no serious adverse events intra- or postprocedurally. The technical success rate was 100%. The primary success rate at 1-3 week follow-up was 85%. The primary assisted success rate, after additional closures, was 100%. There were no inflammatory skin reactions suggesting hypersensitivity to the injected cyanoacrylate, and only a few phlebitic reactions requiring administration of analgesics in patients presenting with large epifascial varicosities.

Conclusions: The treatment for varicose veins, using sandwich technique, which combines cyanoacrylate glue and foam sclerotherapy, can be safe and efficient.

Kongresszusok – rendezvények

Aortic Live.
2024. október 7-8. Andaz Vienna Am Belvedere, Bécs, Ausztria
Honlap: *www.cxaortic.com*

Amerikai Vénás- és Nyirokkeringési Társaság 38. éves kongresszusa.
2024. október 10-13. Chicago, IL, USA
Honlap: *www.myalvs.org*

Venous Symposium Europe.
2024. október 17-19. Athén, Görögország
Honlap: *www.venoussymposiumeurope.com*

Európai Phlebológiai Kollégium Tanfolyama.
2024. október 21-23. Amsterdam/Oegstgeest, Hollandia
Email: *secretariaat@europeancollegeofphlebology.com*

Egyiptomi Érsebészeti és Endovascularis Társaság (EVES) Kongresszusa.
2024. október 30-november 2. Kairo, Egyiptom
Honlap: *www.evesonline.org/annual-conference*

Paris Vascular Insight.
2024. december 12-14. Paris, Franciaország
Honlap: *www.paris-vascular-insight.com*

American Venous Forum Évenkénti Kongresszusa.
2025 február 16-19. Atlanta, Georgia, USA
Honlap: *www.venousforum.org*

EWMA Kongresszus.
2025. március 26-28. Barcelona, Spanyolország
Email: *ewma@ewma.org*
Honlap: *www.ewma.org*

Charing Cross Symposium.
2025. április 23-25. London, Egyesült Királyság
Honlap: *www.cxsymposium.com*

Érsebészeti Társaság (SVS) Évenkénti Kongresszusa.
2025. június 4-7. Convention Center New Orleans, USA
Honlap: *www.vascular.org*

Európai Vénás Fórum 25. Évenkénti Kongresszusa.
2025. június 26-28. Krakkó, Lengyelország
Honlap: *www.europeanvenousforum.org*

20. Phlebológiai Világkongresszus.
2025. október 8-11. Buenos Aires, Argerintina
Honlap: *www.uip-phlebology.org*

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