

VENOUS Review

THE OFFICIAL JOURNAL OF CENTER FOR VEIN RESTORATION

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Iliac Vein Obstruction

NOTE: Extrinsic obstruction is covered in Dr. Stewart's paper on May-Thurner syndrome, also in this newsletter.

by Robert C. Kiser, DO, MSPH

As the saying goes, "All roads lead to Rome." In the venous world all roads lead to the right heart. For Rome the Appian Way was the main road back to Rome. For the venous system, the vena cava is the main road back to the right heart. The common pathways from the lower extremities to the inferior vena cava are the right and left common iliac veins. The iliac veins are further divided into the internal and external iliac veins. The common femoral vein empties into the external iliac vein. Thrombus in the iliac veins presents special challenges in terms of diagnosis, treatment, and potential consequences.

Epidemiology

Femoral Common Femoral External iliac, Common Iliac

Anatomy

Femoral Common Femoral External iliac, Common Iliac.

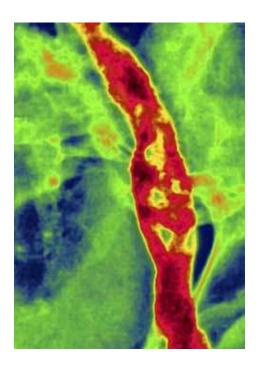
Physiology/Pathophysiology

Causes include ascending thrombophlebitis, inflammation, trauma, iatrogenic, thrombophilia obstruction from artery, mass.

Signs and Symptoms

Acute

Edema, pain, and dusky appearance – together these form the clinical entity known as "Phlegmasia cerulea dolens" (painful blue leg). This results from the total or near total obstruction of venous outflow, with resultant diminished perfusion of the capillary beds. Tissue necrosis and gangrene can result.



Chronic

Edema and varicosities are common, as well as stasis changes to the skin, "venous claudication" and ulceration. This results from chronic obstruction of venous outflow and venous hypertension. Superficial epigastric varicosities.

Diagnostics

Non-invasive: MRV or CTV provide useful data about the iliofemoral vein, intrinsic and extrinsic* obstruction and occlusion. Flow and pressures are not directly measured in these modalities. These modalities provide information about the vein itself and about the structures surrounding the vein.

VENOUS Review

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"Only My Left Leg is Swollen"

by Sean K. Stewart, MS, MD

Think May-Thurner syndrome! May-Thurner syndrome (also known as Cockett Syndrome) is a rare condition in which a deep venous thrombosis (DVT) can form in the iliofemoral vein due to compression of the venous outflow tract of the left lower extremity. More specifically, the left common iliac vein becomes compressed by the overlying right common iliac artery.

The iliac artery compresses the iliac vein leading to stasis of blood, predisposing the individual to the formation of blood clots. Classically, May-Thurner syndrome can only occur in the left leg, since the artery does not acutely overlap the vein in the right leg. The right common iliac vein ascends almost vertically to the inferior vena cava. In contrast, the left common iliac vein takes a more oblique course where it underlies the right common iliac artery. It is at this point, the left common iliac vein is susceptible to compression against the lumbar spine by the overlying right common iliac artery. This pulsatile compression that the artery exerts on the vein results in a left-sided iliac outflow obstruction with localized adventitial fibrosis and intimal proliferation, often eventually precipitating deep venous thrombosis.

This condition is estimated to be three times more prevalent in women than men and occurs most commonly in patients early in life, often presenting in the second to fourth decades of life. Most individuals do not know they have May-Thurner syndrome until it is too late. It is most commonly identified when patients present with a DVT. Patient often present with swelling, pain, warmth, erythema and tenderness in the left leg. May-Thurner syndrome has been linked to chronic venous insufficiency. Diagnosis is confirmed by venography.

Early recognition and appropriate treatment of DVT caused by May-Thurner syndrome can save many lives. The goals of pharmacotherapy for DVT in general are to reduce morbidity, prevent post-thrombotic syndrome, and prevent pulmonary embolism. In May-Thurner syndrome, this is no exception. The primary agents include anticoagulants and thrombolytics. In addition to pharmacotherapy, a thrombectomy should be considered to decrease the incidence of post-thrombotic syndrome.

Often, at the time of the thrombectomy the placement of an inferior vena cava filter is considered to prevent pulmonary embolism. Lastly, correction of the underlying lesion must be addressed by angioplasty and stent placement of the common iliac vein. Commonly, a braided stainless steel stent is used to support the area from further compression following angioplasty.

Contact Dr. Stewart at seanstew@aol.com

Brian Vickers: NASCAR Star Copes with May-Thurner Syndrome

Brian Vickers was quickly climbing the ranks of the best and brightest in the motorsports world. Then, in 2010, a medical condition put the NASCAR star's life on hold. It was May-Thurner Syndrome, and the talented driver suddenly found himself sidelined from his dream career.

According to news reports, Vickers, 26, experienced chest pains during a sightseeing trip in Washington, D.C. He was taken to a hospital, where physicians discovered several blood clots in his veins and in his lungs. Separately, doctors found a blood clot in one of his fingers, which led to the discovery of a patent foramen ovale in Vickers' heart. He had cardiac surgery to repair the hole and also underwent a procedure to install a stent to correct the pinched iliac vein causing May-Thurner. He was prescribed Coumadin and Plavix to prevent clots for six months.

In addition to his recovery time from surgery, Vickers was kept off the

racetrack for safety reasons; because he was on blood thinners, a minor injury could easily have turned into a life-threatening event.

Vickers, who resides in Palm Beach, Fla., returned to racing in 2011 to drive for Team Red Bull. In addition to motor sports, he also continues to enjoy mountain biking, scuba diving, golf and skydiving.

Learn more about Brian Vickers at www.brianvickers.com.



NASCAR driver Brian Vickers (and his car). He was diagnosed with the syndrome and had to take a year off driving to get treatment. He's back racing again now.



New Corporate HQ Opens in Greenbelt, MD

Center for Vein Restoration is proud to announce that we've moved into our new headquarters, based in Greenbelt, MD.

The move is exciting for several reasons: first, we're able to serve more patients and to coordinate with our referring doctors more easily and efficiently; second, we have centralized and expanded our Patient Services group, our concierge-style service that helps patients with everything from scheduling to treatment preparation, medical questions, insurance troubleshooting and more.

The move also represents a new chapter in the continued growth of CVR as a leader in the quickly evolving specialty of vein health. In addition to providing us needed extra space for a growing team, our new headquarters enables us to provide shared services to our rapidly expanding family of locations – 20 as of this newsletter – in Maryland, Northern Virginia, Washington, D.C. and western Michigan. Additional locations are expected to be announced later in 2012.

Our new address is Center for Vein Restoration, Maryland Trade Center 2, 7474 Greenway Center Drive, Suite 1000, Greenbelt, MD 20770. Our main number is (240) 965-3200.



Iliac Vein Obstruction

Continued from Page 1

Invasive: Venography and intravascular ultrasound (IVUS). Contrast venography provides information about the shape of the vein lumen in 2 dimensions. IVUS provides two-dimensional images of the vein lumen, which can be combined to form three-dimensional images of the vein's contours, including any obstruction or deforming compression. Information about blood flow is also available via these methods.

Treatment

Medical treatment includes the usual combination of an immediate acting anticoagulant such as heparin or low-molecular weight heparin (LMWH) plus warfarin, usually for at least one year from the time of the DVT. Anticoagulation does not lyse thrombus. Anticoagulation merely helps to slow the propagation of thrombus, thus allowing the body's intrinsic thrombolytic system time to break down the clot. When large lengths of proximal thrombus develop the intrinsic thrombolytic system can be overwhelmed and the thrombus may remain despite adequate anticoagulation. The thrombus causes inflammation of the endothelium, resulting in scarring, webbing and contracture of the vein. For these reasons, medical treatment alone will not always yield an acceptable outcome, as it does not address the mechanical outlet obstruction.

Surgical treatment has become increasingly popular as endovascular techniques allow minimally invasive removal of the thrombus, and removal of the mechanical obstruction. There are several techniques currently used to remove thrombus, including mechanical wire agitators and hydrodynamic jets to break up and evacuate thrombus. Thrombolytics (e.g., TPA) are sometimes used to lyse the thrombus. After the clot is removed, some surgeons then place a stent within the lumen to assure wide patency and avoid narrowing due to scarring. Anticoagulation remains essential after the endovascular thrombectomy and stenting. However, only 10% of patients treated with anticoagulation alone in the acute setting will have complete resolution of their thrombus and 40% will have further propagation of the thrombus despite adequate anticoagulation. (O'Donnell, Browse et al. 1977)

Complications

For those who have chronic iliofemoral obstruction, the outcome of iliofemoral DVT is post-thrombotic syndrome (PTS), a high-morbidity condition* that is characterized by numerous varicose veins of the lower extremity and suprapubic area due to chronic venous hypertension. This constant restriction in flow creates high pressures in the more distal veins, producing venous hypertension. This, in turn, can lead to vein wall distention, valve incompetence, movement of fluids out of the intravascular and into the interstitial space, poor capillary nutrient exchange and ultimately skin changes such as hyperpigmentation, lipodermatosclerosis and skin ulcer.

Additionally, the chronic venous hypertension and congestion lead to inflammatory changes at the capillary level, which in turn leads to poor skin perfusion, hemosiderin deposition, altered skin healing, and eventually skin necrosis (ulceration). Edema develops, pitting at first, and eventually the subcutaneous tissue becomes infiltrated with collagen fibers, causing contracture and woody-edema known as lipodermatosclerosis. These are permanent integumentary changes.

Addressing the chronic complications of iliofemoral occlusion, whether thrombotic or non-thrombotic requires mechanical (surgical) intervention. Mortality is 0.4% with iliac vein thrombectomy. Prognosis is generally poor in iliac vein thrombosis with standard treatment.³

Doforoncos

* 2. O'Donnell TF, Browse WL, Burnand KE, Thomas ML: The socio-economic effects of an iliofemoral deep venous thrombosis. J Surg Res 1977; 22: 483-88.

Delis, K. T., et al. (2001). "Incidence, natural history and risk factors of deep vein thrombosis in elective knee arthroscopy." Thromb Haemost 86(3): 817-821.

AIMS: to determine the incidence, anatomical distribution and extent of deep vein thrombosis (DVT) in limbs undergoing elective unilateral knee arthroscopy without active prophylaxis, to evaluate its effect on venous function following early diagnosis, and to quantify the impact of risk factors on its incidence. METHODS: 102 consecutive patients undergoing unilateral knee arthroscopy without prophylaxis were studied. A history was obtained with emphasis on the risk factors for thromboembolism, and physical examination and colour duplex were performed prior to and within a week after surgery. Patients who developed calf DVT were given aspirin (150 mg) and compression stockings; those with proximal DVT were admitted for anticoagulation (heparin followed by warfarin). Follow-up (mean 118 [range 84-168] days) entailed weekly physical and duplex examinations during the first month and monthly thereafter. RESULTS: 8 patients developed calf DVT in the operated leg (incidence 7.84% [95% CI: 2.7%-13.2%); thrombosis was asymptomatic in 4 of those (50%), caused calf tredemess in 4 (50%) and a positive Hornar's sign in one (12.5%). DVT occurred in the following veins: peroneal 4 subjects (50%), soleal 4 (50%), gastrooremial 2 (25%) and fibial 2 (25%). Propagation of a calf DVT to the popilical vein was identified in 1 patient (12.5%). After a median period of 114 days, total clot lysis was found in 50% of DVTs. with partial thrombus resorption in the rest; reflux in the thrombosed of a calf DVT in 5% of limbs with DVI. 43% of patients had 1 nisk factor for DVT and 20% had > or < 1 he lower thrombosed of the control of the con

Mewissen, M. W., et al. (1999). "Catheter-directed thrombolysis for lower extremity deep venous thrombosis: report of a national multicenter registry." Radiology 211(1): 39-49.

of a national multicenter registry." Radiology 211(1): 39-49.

PURPOSE: To evaluate catheter-directed thrombolysis for treatment of symptomatic lower extremity deep venous thrombosis (DVT). MATERIALS AND METHODS: From a registry of patients (n = 473) with symptomatic lower limb DVT, results of 312 urokinase infusions in 303 limbs of 287 patients (137 male and 150 female patients, mean age, 47.5 years) were analyzed. DVT symptoms were acute (c or = 10 days) in 188 (66%) patients, chronic (- 10 days) in 45 (16%), and acute and chronic in 54 (19%). A history of DVT existed in 90 (31%). Lysis grades were calculated by using venorgraphic results. RESULTS: lilofemoral DVT (n = 221 [71%]) and femoral-popliteal DVT (n = 79 [25%]) were treated with urokinase infusions (mean, 7.8 million I.u.) for a mean of 53.4 hours. After thromboyls, 59 iliaca and five femoral vein lesions were treated with stents. Grade III (completely lysis was achieved in 96 (31%) infusions; grade II (50%-99% lysis), in 162 (52%), and grade I (< 50% lysis), in 54 (77%). For acute thrombosis, grade III (soromptely of cases of acute and in 19% of cases of acute and in

O'Donnell, T. F., Jr., et al. (1977). "The socioeconomic effects of an iliofemoral venous thrombosis." J Surg Res 22(5): 483-488.

CVR Needs You!

Center for Vein Restoration (CVR) is expanding its operations, and is seeking talented cardiothoracic, vascular and general surgeons like you to join our clinical team.

CVR is the largest physician-led vein treatment medical practice in the country. Our sole focus is the diagnosis and treatment of venous insufficiency, the cause of varicose veins and spider veins that affects more than 30 million Americans. With 20 locations and growing, we treated more than 10,000 patients, performed over 6,500 ablations in 2011 alone, and we pride ourselves on a patient satisfaction rate of over 97 percent. And, we continue to push for excellence in the field with our ongoing research into venous disease and our busy roster of CME courses.

A critical part of CVR's strategic growth plan is to work with local physicians in new markets who share our ethos of efficiency, patient care, teamwork, practice growth and passion for treatment in the quickly evolving field of venous disease. We offer physicians the opportunity to join our team on a contractual, part-time or full-time basis as well as the freedom to maintain activity in their current specialty. We offer competitive compensation, and we also stress work-life balance, providing our physicians freedom from late-night and weekend hours, hospital calls, and the frustration of an inefficient work environment.

For more information about joining our team, contact Bob Howell, Director of Growth and Development at bob.howell@centerforvein.com at (855) 828-8346, or physician. practice@centerforvein.com.



Meet Dr. Chowla



Arun Chowla, MD is the founder of Nova Vein Clinic in Virginia. He joined Center for Vein Restoration when Nova became a part of the CVR family in June.

Dr. Chowla has trained extensively in India and the United States. He completed his medical school at University of Delhi, India in 1989 and completed a residency in General Surgery from the University of Delhi in 1993. He then moved to New

York, and completed a General Surgery residency at Beth Israel Medical Center in Manhattan in 1998. He also underwent further training with Fellowship in Vascular Surgery at the Mayo Clinic in Jacksonville, Florida and subsequently at the vein clinic at Arizona Heart Institute. He is Certified by the American Board of Surgery and is a Fellow of the American College of Surgeons.. He has been in private practice since 2000, providing specialized care for venous disease .

Dr. Chowla has a special interest in the treatment of vein disorders, including endovenous ablation of varicose veins, and has several publications and research presentations to his credit. He has privileges at Inova Fairfax, Fair Oaks and Alexandria hospitals. He currently is available for consultations in the CVR offices in Alexandria, Fairfax and Fair Oaks.

CORRECTION

In Issue 5.2 of the Venous Review newsletter (July 2012), we incorrectly stated the credentials of one of our new doctors, Khoa Q. Tran, MD. It should have read that Dr. Tran is board certified in internal medicine.

New CME Announced

We are pleased to announce more CME sessions for fall 2012 on venous insufficiency. Each course is valued at 3 CME credits. Details are below; to learn more or to request a CME in a region we serve, please contact Brent Matherly at 443-370-3830 or 301-860-0930 and at brent.matherly@centerforvein.com.

CME Courses & Speaking Engagements

OCTOBER

VIRGINIA

Leesburg

Thursday, October 11 Clyde's Willow Creek Farm 42920 Broadlands Blvd Broadlands, VA 20148

RSVP by October 3

Katie Bancroft, Physician Liaison at (703) 915-9400 or katie.bancroft@centerforvein.com

CVR WILL BE AN EXHIBITOR AT THE 2012 AMERICAN COLLEGE OF PHLEBOLOGY ANNUAL CONGRESS November 15-18 The Westin Diplomat Hollywood, Florida

Additionally, we will take part in several medical meetings this Fall, including:

2/23:

Sponsorship of the World Health Ambassador Luau, Vienna, VA.

10/5

Sponsorship of the Indian Medical Association Annual Meeting, Bethesda, MD

10/18:

Sponsorship of and Speaking Engagement at the Chinese American Medical Association, Rockville, MD. Presenting: CVR's Jaime F. Marquez, MD, FACS and Eddie A. Fernandez, MD

Would you like us to offer a CME course near you?

Please contact Brent Matherly at 443-370-3830 or 301-860-0930

AND AT BRENT.MATHERLY@CENTERFORVEIN.COM



Q: "What criteria must be met to determine which modality CVR uses for treatment?"

A: Determination of the best treatment for patients with Chronic Venous Insufficiency must be based on symptoms, CEAP classification, venous duplex results, vein size, and expected outcomes.

First and most important is that the patient must be symptomatic. The patient must demonstrate clinically significant reflux (> 0.5 secs). Other criteria that will dictate treatment modality include; length of the vein, diameter, and depth of the vein. Insurance requirements may also dictate which modality will be used.

Asymptomatic patients with ultrasound evidence of venous insufficiency are commonly treated with compression stockings and regular follow up.

Symptomatic patients or patients with a CEAP classification of 2 or greater will be treated using either endovenous laser ablation (EVLA),

radiofrequency ablation (RF), ultrasound guided foam sclerotherapy (USGFS), or microphlebectomy. Commonly, axial veins tend to be long and straight and may be treated with either EVLA or RF. For vein segments that are either short or small in diameter, EVLA or USGFS closure is preferred. Tortuous veins and/or superficial are best treated with the use of USGFS. Superficial varicose veins are either treated with sclerotherapy or microphlebectomy; this depends on the extent and size of the varicose network.

At CVR we also consider USGFS an an adjunctive treatment to thermal ablations, not primary treatment.

- Eddie A. Fernandez, MD. Dr. Fernandez will be presenting Oct. 18 at the Chinese American Medical Association, meeting in Rockville, MD.



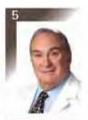
OUR PHYSICIANS & LOCATIONS











- 1. Sanjiv Lakhanpal, M.D., F.A.C.S.
- 2. Jaime Marguez, M.D., FA.C.S.
- 3. Shekeeb Sufian, M.D., F.A.C.S.
- 4. Luis A. Dibos, M.D., F.A.C.S.
- 5. Thomas Militano, M.D., F.A.C.S.

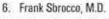












- Arvind Narasimhan, M.D.
- 8. Khanh Nguyen, D.O.
- 9. Eddie Fernandez, M.D.
- 10 J. Andrew Skiendzielewski, D.O.











- Stéphane Corriveau, M.D.
- 12. Rory C. Byrne, M.D.
- 13. Rob Kiser, D.O.
- 14. John Pietropaoli, M.D., F.A.C.S.
- 15. Sean K. Stewart, M.D.









- 16. Richard Nguyen, MD
- 17. Khoa Tran, MD
- 18. Arun Chowla, MD, F.A.C.S.
- 19. Vinay Satwah, DO, FACOI

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From The **Editor**



Editor-in-Chief, President & CEO, Center for Vein Restoration Sanjiv Lakhanpal, MD, FACS



Robert C. Kiser, DO, MSPH

VENOUS Review

As the author Albert Camus once mused, "Autumn is like a second spring, when every leaf is in flower." For most of us, as we watch the leaves brighten and feel the days grow brisk, autumn can be a happy time full of tradition, fun and celebration. For patients with varicose veins and spider veins, however, this can be a frustrating season – their desire to get out and about to enjoy themselves is often curtailed by pain, discomfort or even embarrassment. Even simple pleasures like going to the farmer's market to pick out pumpkins or going trick-or-treating with the kids can elude them.

We strive to help our patients reclaim their quality of life by restoring their vein health. We're proud to report that due to our continued growth, we're able to help more patients than ever before. As of this writing, we have 20 locations serving patients in Maryland, Northern Virginia, Washington, D.C., and western Michigan.

As we've expanded we're also proud to share that we've launched our new Patient Services department, a kind of concierge service for patients, where they can phone to ask health questions, get assistance with appointments, insurance claims and more. This new development helps ensure that each patient receives the advice, information and treatment necessary to help them on the path to looking better, feeling better and living better.

We thank you for your continued support and interest in Center for Vein Restoration and hope you find this newsletter of interest to you, your colleagues and your patients.

Yours in good health

Regards,

Robert C. Kiser, DO, MSPH

Editor











Visit our website: www.centerforvein.com



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