



GE HealthCare

Versatility, portability and image quality:

The role of Versana Active in vascular care

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Clinical case of endovenous thermal ablation

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The following case was obtained by Zayed Meadows, B.S., RVT using a Versana Active.™

Zayed Meadows, B.S., RVT is a paid consultant for GE HealthCare and was compensated for participation in this case study. The statements by Zayed Meadows, B.S., RVT described here are based on her own opinions and on results that were achieved in her unique setting. Since there is no "typical" hospital and many variables exist, i.e. hospital size, case mix, etc., there can be no guarantee that other customers will achieve the same results.



Endovenous thermal ablation

Physical presentation

- Patient presents with leg myalgia and edema with worsening symptoms at the end of the day or with prolonged standing or sitting.
- Patient underwent radiofrequency ablation three months prior.
- Patient presented six days later for post ablation follow up. Since her procedure, the patient continued to have right leg pain and new onset, intermittent shortness of breath.
- No history of thrombosis or clotting disorders.

Indication to consider a vascular ultrasound of the lower extremity veins: Follow up study recommended due to symptoms and recent endovenous thermal ablation of the right lower extremity.

Endovenous thermal ablation is a nonsurgical treatment for varicose veins. Providers use a laser or radiofrequency waves to seal off veins. This procedure requires a small incision and usually has a shorter recovery time than surgery. Vein ablation can cause some discomfort, but it is typically performed under local anesthesia to minimize pain during the procedure. Overall, the discomfort is generally mild, and most patients can manage it with over-the-counter pain medication.¹



Post thermal ablation follow up

Transverse and longitudinal views of the right greater saphenous vein (GSV) endovenous heat-induced thrombus at the superficial femoral junction. At the initial ultrasound scan (1-4 weeks after treatment), thrombus extension from the GSV into the common femoral vein (CFV) should be evaluated. Protrusion of a thrombus into the lumen of the CFV is very unusual (<1%) and should always be considered a pathological finding. The extent of the thrombus should be assessed to assist in selecting appropriate treatment and monitoring.²

Endovenous thermal ablation *cont.*

Key findings

- Exam showed evidence of Class 1 Endovenous heat induced thrombus (EHIT)
 - This patient was placed on anticoagulants due to the clinical presentation in spite of the ultrasound findings demonstrating a Class 1. The physician felt the presentation was more consistent with a Class 2. It could not be determined from the ultrasound whether or not the EHIT was poorly attached; which would classify it as Class 2.
- There were no key features that were used to enhance the image quality.
- Patient returned for a 1 week follow up which showed the deep vein thrombosis had resolved.

Classification and treatment of endothermal heat induced thrombosis³

Recommendations from the American Venous Forum (AVF) and the Society for Vascular Surgery (SVS)

AVT EHIT Class	Definition	Treatment recommendation	Strength of recommendation* and level of evidence**
I	Thrombus without propagation into deep vein a. Peripheral to superficial epigastric vein b. Central to superficial epigastric vein, up to and including the deep vein junction	No treatment or surveillance.	2C
II	Thrombus propagation into the adjacent deep vein, but comprising <50% of the deep vein lumen	No treatment, weekly surveillance until thrombus resolution. In high risk patients consider antiplatelet therapy vs. anticoagulation. Discontinue treatment following thrombus retraction or resolution	2C
III	Thrombus propagation into the adjacent deep vein but comprising >50% of the deep vein lumen	Therapeutic anticoagulation, weekly surveillance. Discontinue treatment following thrombus retraction or resolution	1B
IV	Occlusive deep vein thrombosis contiguous with the treated superficial vein	Treatment should be individualized, taking into account risks and benefits to patient. Reference may be made to CHEST guidelines for treatment of DVT.	1A

*1=Strong, 2=Weak. **A=High, B=Moderate, C= Low to very low

Endovenous thermal ablation *cont.*

Conclusion

This example shows the portable Versana Active ultrasound system provides versatility while maintaining image quality comparable to that of a traditional ultrasound console.

With the use of Versana Active, we were able to achieve optimal image quality without time-consuming image manipulation. It has the sensitivity to demonstrate both color and spectral Doppler of deeper vessels without image degradation or delays in the frame rate with triplex mode.

Post venous ablation procedures with Versana Active allows for superior imaging of endovenous heat induced thrombus at the level of and propagation into the deep system.

The portable Versana Active ultrasound system does not pose limitation with deep vein imaging vascular exams.



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Zayed is the director of The Vascular Lab at the Center for Vein Restoration (CVR) where she oversees a team of sonographers who assist physicians in the diagnosis and treatment of venous disease through the use of ultrasound. Before moving to CVR in 2007, she worked as Vascular Technologist from 2000 to 2007. Zayed is a graduate of the University of Tennessee at Chattanooga (USA) with a B.S. in Exercise Science, Cardiopulmonary Rehab. She is trained in various modalities of vascular ultrasound, which consist of arterial, transcranial doppler, carotid, venous, and visceral studies.

1. https://www.vascularsociety.org.uk/patients/procedures/11/endovenous_ablation
2. De Maeseneer, M., Pichot O., Cavezzi A., Earnshaw J., van Rij, A., Lurie, F., Smith, P.C. (2011). Duplex Ultrasound Investigation of the Veins of the Lower Limbs after Treatment for Varicose Veins – UIP Consensus Document. *ESVS Journal, Eur J Vasc Endovasc Surg* 42, 89-102.
3. Kabnick LS, Sadek M, Bjarnason H, Coleman DM, Dillavou ED, Hingorani AP, Lal BK, Lawrence PF, Malgor RD, Puggioni A. Classification and treatment of endothermal heat-induced thrombosis: Recommendations from the American Venous Forum and the Society for Vascular Surgery. *J Vasc Surg Venous Lymphat Disord.* 2021 Jan;9(1):6-22. doi: 10.1016/j.jvsv.2020.06.008. Epub 2020 Oct 1. PMID: 33012690. <https://pubmed.ncbi.nlm.nih.gov/33012690/>

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