

# Deep-Vein Thrombosis Diagnosis

The clinical diagnosis of [Deep-Vein Thrombosis](#) is very unreliable. A patient with the “classic signs” of a hot, swollen, and tender [calf](#) or a positive [Homans’ sign](#) ([calf pain](#) on dorsiflexion of the [ankle](#)) will have a Deep-vein thrombosis only 20–50% of the time <sup>1)</sup>. 50–60% of patients with Deep-vein thrombosis will not have these findings.

Currently, [color flow duplex scanning](#) performed by skilled operators provides the most practical and cost-effective method for assessing Deep-vein thrombosis of the proximal and distal lower extremity veins.

Unfortunately, most duplex ultrasound-based algorithms for the diagnosis of Deep-vein thrombosis, and some vascular laboratories, still do not include an initial ultrasound evaluation of the calf veins as part of their routine evaluation for Deep-vein thrombosis, even in symptomatic patients. This is largely the result of outdated perceptions of the inaccuracy of ultrasound evaluation of Deep-vein thrombosis isolated to the calf veins. Failure to perform a complete initial examination necessitates serial ultrasound examinations or alternative strategies to detect possible extension of venous thrombi initially isolated to the calf veins. Such strategies are inefficient, and unlikely to be cost effective, compared with the modern practice of a single stand-alone color flow duplex study of the proximal and distal lower extremity veins in patients with suspected Deep-vein thrombosis.

According to the Diagnosis and Treatment Guide of Deep-vein thrombosis created previously <sup>2) 3)</sup> The diagnosis of Deep-vein thrombosis should be confirmed through auxiliary examinations, including [Doppler ultrasound](#), plasma [D-dimer](#), confidential interval venography, magnetic resonance imaging venography and angiography, etc.

The Doppler ultrasound diagnostic points of Deep-vein thrombosis are as follows: (1) The probe pressurized venous lumen is not completely closed; (2) the diameter of the embolization segment vein widens obviously, and the [thrombosis](#) echo within the lumen has varying degrees of intensity; (3) color Doppler ultrasound provides color flow imaging during embolization that indicates that the vein is thinned or that there is no blood flow; (4) pulse Doppler shows no blood spectrum in the thrombus segment, and the blood spectrum of the distal thrombus does not change with respiration; and (5) Valsalva test is abnormal.

<sup>1)</sup>

Hamilton MG, Hull RD, Pineo GF. [Venous Thromboembolism](#) in Neurosurgery and Neurology Patients: A Review. *Neurosurgery*. 1994; 34:280-296

<sup>2)</sup>

Dermody M, Alessi-Chinetti J, Iafrafi MD, Estes JM. The utility of screening for deep venous thrombosis in asymptomatic, non-ambulatory neurosurgical patients. *J Vasc Surg*. 2011;53:1309-15.

<sup>3)</sup>

Edinburgh: Scottish Intercollegiate Guidelines Network (SIGN); 2010. A National Clinical Guideline Scottish Intercollegiate Guidelines Network (SIGN). Prevention and management of venous thromboembolism. A national clinical guideline; pp. 1-101.

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