

Venous thromboembolism

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Epidemiology

Thromboembolic diseases are of major clinical concern due to their high prevalence and consequences, which are often fatal. Venous thromboembolism (VTE) is estimated to be the third most common cardiovascular disorder after coronary heart disease and stroke ¹⁾.

Approximately 500,000 cases of venous thromboembolism (VTE) are reported annually in the United States.

[Deep-Vein Thrombosis](#) (Deep-vein thrombosis) and [pulmonary embolism](#) (PE) are two clinical manifestations of VTE. VTE is essentially a massive PE, causing death in 70% within the first hour following the onset of symptoms.

VTEs are associated with longer hospitalizations, a decreased likelihood of being discharged home, and overall increases in hospital resource utilization and cost in inpatient and outpatient settings. VTE patients generate greater charges in the outpatient setting and are more likely to become readmitted at 6, 12, and 18 months after surgery, demonstrating a significant socioeconomic impact long after occurrence ²⁾.

Risk factors

[Venous thromboembolism risk factors](#).

High-grade glioma

see [Venous thromboembolism in high-grade glioma](#)

see [Venous Thromboembolism in Spontaneous Intracerebral Hemorrhage](#)

During aneurysm coiling

During aneurysm [coiling](#)

Pathophysiology

An inflammatory reaction is usually present, mainly in the superficial veins and, for this reason this pathology is called most of the time thrombophlebitis. In fact, the inflammatory reaction and the white blood cells play a role in the resolution of venous clots.

Whether an ischemic stroke is due to a noncardiogenic or cardiogenic source, the mechanism of causing a stroke is the same. Both sources are involved with the development of thrombi or emboli that move from their original source to the brain blocking blood flow in the process. Known as Virchow's triad, venous stasis, vascular injury, and hypercoagulability are major components in the development of thrombi.

A blood clot forms due to blood changes in which cellular material, such as red and white blood cells and platelets, become bound together by fibrin strands. Deep-Vein Thrombosis (Deep-vein thrombosis), forming in the veins of the lower limbs, are the most common emboli associated with pulmonary emboli.

Clinical features

Nonspecific; pain, tenderness, swelling, discoloration (paleness or redness) in lower extremities.

Cerebral venous sinus thrombosis

[Cerebral venous sinus thrombosis](#)

Pulmonary Embolism

see [Pulmonary Embolism](#).

Diagnosis

Asymptomatic cerebral [thromboembolic events](#) can be detected by [Diffusion-weighted magnetic resonance imaging](#) after [ACDF](#). The incidence of such events remains very rare despite the direct manipulation and associated alteration of common carotid artery flow dynamics ³⁾.

Prophylaxis

see [Venous thromboembolic prophylaxis](#).

Treatment

[Venous thromboembolism treatment](#).

Outcome

[Venous thromboembolism outcome](#).

¹⁾

Goldhaber SZ. Pulmonary embolism thrombolysis: a clarion call for international collaboration. J Am Coll Cardiol. 1992;19(2):246-247.

²⁾

Li AY, Azad TD, Veeravagu A, Bhatti I, Li A, Cole T, Desai A, Ratliff JK. Impact of Inpatient Venous Thromboembolism Continues After Discharge: Retrospective Propensity Scored Analysis in a Longitudinal Database. Clin Spine Surg. 2016 Oct 12. PubMed PMID: 27750270.

³⁾

Chung SW, Kang MS, Lee SH, Lee SY, Shin YH, Park CH. Cerebral Thromboembolic Events During Anterior Cervical Spine Surgery: Retrospective Case Series Study With Diffusion-Weighted Magnetic Resonance Imaging Follow-up in the Immediate Postoperative Period. Neurospine. 2018 Mar;15(1):86-90. doi: 10.14245/ns.1834846.423. Epub 2018 Mar 28. PubMed PMID: 29656628.

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