

# Catheter-Directed Therapy Options for Iliofemoral Venous Thrombosis



Deepak Sudheendra, MD, FSIR, RPVI<sup>a,\*</sup>, Suresh Vedantham, MD, FSIR<sup>b</sup>

## KEYWORDS

- Deep vein thrombosis • Pulmonary embolism • Postthrombotic syndrome
- May Thurner syndrome • Iliac vein compression

## KEY POINTS

- Proximal deep venous thrombosis (DVT) is linked to a 50% risk of pulmonary embolism and postthrombotic syndrome.
- Catheter-directed thrombolysis (CDT) can be a useful adjunct to anticoagulant therapy for carefully selected patients with proximal acute DVT.
- CDT combined with mechanical thrombectomy allows for greater thrombus removal and decreased use of thrombolytics.
- An individualized approach to patient selection, with careful assessment of the risk for bleeding, is recommended.
- Risk of acute kidney injury from hemoglobinuria during pharmacomechanical thrombectomy can be reduced with periprocedural hydration, alkalinization of urine, and diuresis.

## INTRODUCTION

Venous thromboembolism (VTE), which includes deep venous thrombosis (DVT) and pulmonary embolism (PE), is the third leading cause of cardiovascular death behind heart attack and stroke.<sup>1</sup> Up to one-third of patients diagnosed with VTE will die within 1 month of diagnosis, and nearly 25% of patients with PE will have sudden death as the presenting symptom.<sup>2</sup> Furthermore, VTE remains the leading cause of preventable hospital death.<sup>3,4</sup> Despite these sobering statistics, little is known by the general public about VTE and its long-term sequelae, including chronic thromboembolic pulmonary hypertension and the postthrombotic syndrome (PTS).

---

Disclosure Statement: Dr D. Sudheendra is a consultant for Boston Scientific and Teleflex. Dr S. Vedantham's institution receives research support from BSN Medical and Cook Medical for studies he conducts.

<sup>a</sup> Department of Radiology, University of Pennsylvania, Perelman School of Medicine, 1 Silverstein, 3400 Spruce Street, Philadelphia, PA 19104, USA; <sup>b</sup> Mallinckrodt Institute of Radiology, Washington University in St. Louis, 510 South Kingshighway, Box 8131, St Louis, MO 63110, USA

\* Corresponding author.

E-mail address: [Deepak.Sudheendra@uphs.upenn.edu](mailto:Deepak.Sudheendra@uphs.upenn.edu)

Surg Clin N Am 98 (2018) 255–265

<https://doi.org/10.1016/j.suc.2017.11.012>

0039-6109/18/© 2017 Elsevier Inc. All rights reserved.

[surgical.theclinics.com](http://surgical.theclinics.com)

DVT is classified as distal (involving the calf veins) or proximal (involving the popliteal and/or more proximal veins) in nature. Although distal DVT tends to have a more benign disease course, proximal DVT is linked to an estimated 50% risk of PE and nearly 50% risk of PTS.<sup>5,6</sup> PTS, which consists of a medley of chronic symptoms including pain, leg swelling, skin discoloration, and sometimes progression to venous ulcers, is most commonly associated with iliofemoral DVT (which is defined as DVT involving the iliac and/or common femoral vein, with or without involvement of other veins) in particular. As a result, patients presenting with iliofemoral DVT have traditionally been considered the patients who may be most likely to experience long-term benefit from endovascular thrombus removal.

Presently, the standard of care for acute DVT is systemic anticoagulation. The purpose of systemic anticoagulation is to prevent thrombus propagation, thereby reducing the incidence of PE. However, it is the body's endogenous fibrinolytic system that plays the primary role in thrombus resolution. Even with systemic anticoagulation, the massive clot burden in iliofemoral DVT is overwhelming for the body's fibrinolytic system and usually results in incomplete clot dissolution. The remaining thrombus burden can predispose the patient to recurrent thrombosis and PTS secondary to ambulatory venous hypertension, which develops from the combination of venous obstruction and venous valvular dysfunction.

Endovascular treatment options with catheter-directed thrombolysis (CDT) and pharmacomechanical catheter-directed thrombolysis (PCDT) are often used for iliofemoral DVT to lessen the thrombus burden and expedite symptom resolution. They are also hypothesized to minimize valvular damage and thereby reduce the incidence and severity of PTS.

## CLINICAL EVALUATION AND PATIENT SELECTION

Anticoagulation remains the standard of care for DVT treatment. CDT is a more aggressive treatment option requiring a thorough clinical evaluation and proper patient selection to ensure good outcomes and minimize complications. Although the vast majority of patients can be treated in a nonurgent manner, patients with a threatened limb (ie, phlegmasia cerulea dolens) warrant emergent thrombolysis and/or surgical thrombectomy for limb salvage.

Several factors must be considered in determining a suitable candidate for thrombolysis (**Fig. 1**). These factors include the following:

### ***Age and Extent of Thrombus***

---

Knowing the approximate age of the thrombus is critical in determining whether CDT or pharmacomechanical thrombectomy will be effective. At present, this assessment generally relies mainly on a careful medical history to document the onset date of symptoms. Noninvasive imaging with ultrasound (US) or computed tomography (CT) can lend additional information on whether the DVT is acute/subacute or chronic in nature. Thrombus that is acute ( $\leq 14$  days) has the highest likelihood of responding to thrombolytic therapy compared with older thrombus, which has become more organized and in some cases calcified.<sup>7</sup> In the authors' experience, there is no established role for thrombolytic therapy for chronic thrombus except in some situations of acute on chronic DVT. For extension of thrombus into the inferior vena cava (IVC) or free floating thrombus in the IVC, some practitioners consider the use of an IVC filter. However, the authors do not recommend this as a routine practice because available studies suggest that PE is rare with CDT. If an IVC filter is planned, the risks and benefits should be discussed with the patient.

Download English Version:

<https://daneshyari.com/en/article/8837557>

Download Persian Version:

<https://daneshyari.com/article/8837557>

[Daneshyari.com](https://daneshyari.com)