

# Pediatric Central Line–associated Acute Deep Vein Thrombosis

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Central venous access in pediatric patients, although necessary in some critically ill patients and patients undergoing cardiac or other major surgical procedures, can be associated with acute and/or chronic deep venous thrombosis.<sup>1</sup> While acute deep venous thromboses are rare in children, they can lead to severe complications, including postthrombotic syndrome and pulmonary embolism. Mortality rates associated with central line–related deep vein thrombosis and pulmonary embolism in children may be as high as 2.2%.<sup>2</sup> While typically a more common perioperative complication in adults, they have become increasingly recognized in children. Even more concerning, they are frequently seen in patients with no underlying thrombophilia.<sup>2</sup> Symptoms of acute deep venous thrombosis in a child include severe purple discoloration and attendant swelling of the involved extremity (see image). This can occur over time or, in some cases, within minutes of line placement as occurred in this patient. Prompt diagnosis is essential as the need for anticoagulation will

frequently be in conflict with the need for postprocedure hemostasis.

In the acute setting, treatment goals include stopping propagation of clot and preventing embolization and recurrence. Due to the rarity of these events in pediatric patients, few adequate therapeutic trials have been performed.<sup>1,2</sup> The most prevalent approaches remain institution of intermediate-term anticoagulation with unfractionated heparin, low-molecular-weight heparin, or vitamin K antagonists.<sup>3</sup> In cases where deep venous thrombosis leads to hypotension and/or shock as a result of pulmonary embolism or superior vena cava syndrome, emergent thrombolysis with thrombolytics such as urokinase or recombinant tissue plasminogen activator may be indicated.<sup>3</sup>

## Competing Interests

The authors declare no competing interests.

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