

Clinical outcomes of ultrasound-accelerated catheter-directed thrombolysis via the EKOS system in managing venous thromboembolism

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Case Overview. A case presentation of internal jugular vein thrombosis managed successfully via localized ultrasound-facilitated catheter-directed thrombolysis

Medical Background. A patient undergoing eighth chemotherapy course for stage IV rectosigmoid junction cancer (cT3N1M1 HEP, Group 4) developed right internal jugular vein thrombosis, confirmed by duplex ultrasonography. The patient had a history of subcutaneous port placement in the same vein since May 2025. Symptomatic thrombosis successfully managed via localized thrombolysis using the EKOS ultrasound-guided catheter system.

Diagnostic Evaluation. Duplex ultrasonography of the cervical vessels demonstrated heterogeneous thrombi within the common and internal jugular veins. This obstruction caused subtotal luminal occlusion, with color Doppler imaging confirming the complete absence of detectable blood flow.

Procedure. Retrograde recanalization of the obstructed right internal jugular vein achieved using a 0.035-inch hydrophilic guidewire. Subsequently, an EKOS infusion catheter (106–18 cm) equipped with an ultrasonic core advanced through a 5Fr Hink catheter. Following 12 hours of ultrasound-accelerated catheter-directed thrombolysis, follow-up venography demonstrated complete restoration of venous patency. The access port evaluated using a Huber needle, confirming its functionality, after which a sterile dressing applied.

Conclusion. Catheter-associated venous thrombosis represents a formidable challenge in oncological practice, carrying a risk of severe sequelae despite its low incidence. The clinical utility of the EKOS system underscores that ultrasound-accelerated thrombolysis serves as an effective and reliable therapeutic modality for managing both peripheral venous thrombosis and pulmonary embolism.