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Editorial Article

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Mechanical Thrombectomy of Trauma-Related Inferior Vena Cava Thrombosis Using Flow Triever System as Pulmonary Embolism Protection

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Letter to the Editor,

Inferior vena cava (IVC) thrombosis is a rare but potentially life-threatening entity, accounting for a small minority of venous thromboembolism cases [1]. The condition carries a high risk of pulmonary embolism (PE), renal compromise, and post-thrombotic morbidity, with management often complicated by concurrent comorbidities. In the trauma setting, additional challenges arise from bleeding risks, recent surgical interventions, and coexisting hematomas, which may contraindicate anticoagulation [2].

In patients unable to receive anticoagulation, inferior vena cava filter placement has historically been considered. However, filter placement is often technically challenging or inadvisable due to thrombus location, complex anatomy, potential risks such as renal vein
thrombosis, or long-term complications if the filter is not retrieved. The emerging mechanical thrombectomy system has expanded treatment options for acute caval thrombosis, yet data remains limited, particularly for trauma-related cases [3,4].

We report the case of a 57-year-old woman who sustained a horse kick to the abdomen, resulting in a grade III liver laceration, retroperitoneal hematoma, and subsequent laparotomy. Anticoagulation was initially withheld due to hemorrhagic risk. Interval imaging revealed a new infrarenal IVC thrombus extending to the level of the right renal vein in a patient with a solitary right kidney (Figure 1a and Figure 1b). Given the thrombus location, both infrarenal and suprarenal IVC filter placement was avoided due to the potential risk of renal vein thrombosis, while anticoagulation remained contraindicated.

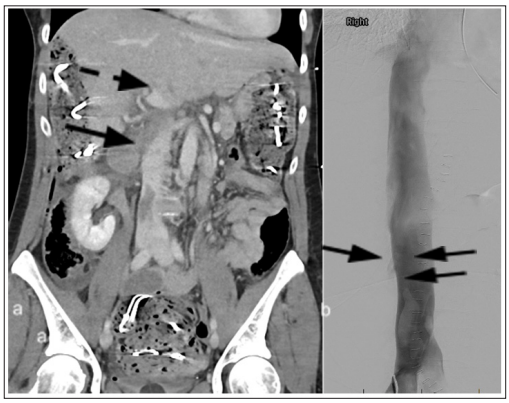

Figure 1: Preprocedural Contrast-Enhanced ct Demonstrates a Large Thrombus in the Inferior Vena Cava at the Right Renal Hilum (Solid Arrow) and Smaller Thrombi Near the Left Renal Vein (Dotted Arrow) (a). Initial Venography Confirms the Inferior Vena Cava Thrombus (Solid Arrows), While the Smaller Thrombus at the Level of the Right Renal Vein is Not Clearly Visualized (b).

Endovascular thrombectomy was pursued. To mitigate PE risk, a FlowTriever XL catheter (Inari Medical, Irvine, CA, USA) was advanced suprarenally through right internal jugular access and deployed as a temporary embolic protection system (Figure 2a). Via right femoral venous access, a ClotTriever XL device (Inari Medical, Irvine, CA, USA) retrieved substantial volumes of organized thrombus. The FlowTriever XL catheter captured embolus during thrombectomy, with subsequent aspiration through a Triever catheter (Inari Medical, Irvine, CA, USA) (Figure 2b). Completion venography confirmed no residual

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thrombosis in the IVC (Figure 3). Post-procedural CT pulmonary angiography demonstrated a small, asymptomatic distal PE. The patient tolerated the procedure well, and follow-up CT at three months demonstrated complete resolution of thrombus with preserved renal function (Figure 4).

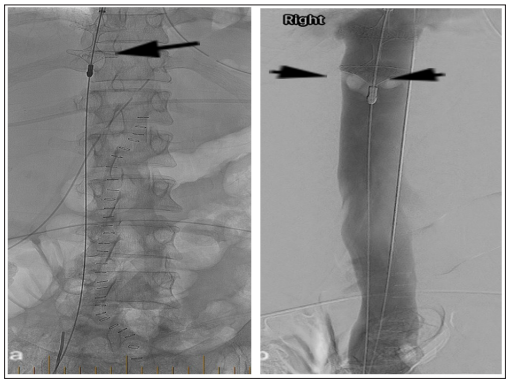

Figure 2: FlowTriever Catheter (Arrow) Advanced Via Right Internal Jugular Access with Discs Deployed in the Inferior Vena Cava Above the Right Renal Vein Confluence (a). Migrated Thrombus Captured After Two Embolectomies (Arrows) and Aspirated With the FlowTriever System (b).

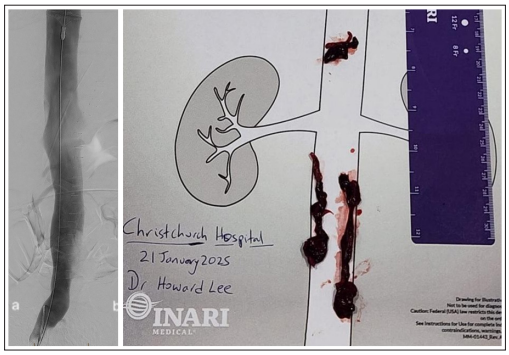

Figure 3: Completion Venography Demonstrated Brisk Flow Without Residual Thrombosis (a). Aspirated Thrombus Displayed on an Illustration Sheet After Thrombectomy (b).

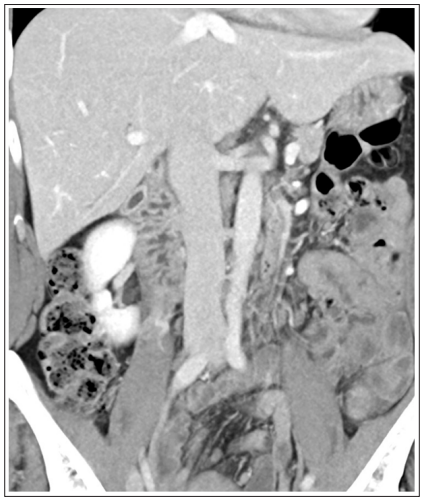

Figure 4: Follow-up CT at 3 Months Demonstrated Complete Resolution of Thrombosis (a).

This case highlights several key considerations. First, trauma-related IVC thrombosis remains a rare but important complication, often arising in the context of venous stasis from retroperitoneal hematoma, caval compression, or surgical manipulation [1]. Second, management can be particularly challenging when anticoagulation and filter placement are not viable. Third, the combined use of ClotTriever thrombectomy with FlowTriever as temporary embolic protection offers a safe and minimally invasive strategy that circumvents the limitations of permanent filters.

Published experience with these devices in IVC thrombosis is limited but growing. Shah et al described successful use of the FlowTriever and ClotTriever systems in IVC thrombosis, demonstrating durable results without need for adjunctive filters [3]. More recently, Li et al reported mechanical thrombectomy for filter-associated caval thrombosis, further supporting the feasibility of this approach [4]. The present case extends this experience by demonstrating the specific utility of FlowTriever as a dynamic, retrievable PE protection tool in a trauma setting where traditional filter placement was contraindicated.

This technique may offer broader applications. In trauma patients at high risk of thromboembolism but unsuitable for anticoagulation or filter placement, temporary FlowTriever deployment during thrombectomy can provide embolic protection without a permanent device. It avoids filter-related thrombosis, allows immediate removal, and permits aspiration of captured debris. While further studies are needed, this case suggests a role for FlowTriever assisted thrombectomy in complex IVC thrombosis, particularly in trauma and perioperative settings.

In summary, ClotTriever thrombectomy with FlowTriever-mediated embolic protection is a feasible option for trauma-related IVC thrombosis when conventional therapies are unsuitable. This case adds to emerging evidence supporting mechanical thrombectomy as a filter-sparing strategy in high-risk patients.

Institutional Review Board approval was not required as this report describes a single clinical case and does not meet the definition of human subject's research.

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References

1. McAree BJ, O'Donnell ME, Fitzmaurice GJ, et al. Inferior vena cava thrombosis: a review of current practice. Vasc Med. 2013. 18: 32-43.
2. Kearon C, Akl EA, Ornelas J, et al. Antithrombotic therapy for VTE disease: CHEST guideline and expert panel report. Chest. 2016. 149: 315-352.
3. Shah NG, Wible BC, Paulisin JA, et al. Management of inferior vena cava thrombosis with the FlowTriever and ClotTriever systems. J Vasc Surg Venous Lymphat Disord. 2021. 9: 615-620.
4. Li RL, Voit A, Commander SJ, et al. Mechanical thrombectomy of inferior vena cava filter–associated caval thrombosis using FlowTriever and ClotTriever systems. J Vasc Surg Venous Lymphat Disord. 2023.11: 1175-1181.