

Acute thrombosis of the inferior vena cava associated with chronic narrowing in a former runner: a case report

 Anica Milinković^{*},
 Petra Grubić
Rotkvić¹,
 Mia Maria Jurinjak²,
 Ana Šutalo¹,
 Ivana Jurca¹,
 Majda Vrkić
Kirhmajer^{1,2}

¹University Hospital Centre
Zagreb, Zagreb, Croatia

²University of Zagreb School
of Medicine, Zagreb, Croatia

KEYWORDS: inferior vena cava thrombosis, chronic inferior vena cava narrowing, pulmonary embolism.

CITATION: *Cardiol Croat.* 2024;19(11-12):537-8. | <https://doi.org/10.15836/ccar2024.537>

***ADDRESS FOR CORRESPONDENCE:** Anica Milinković, University Hospital Centre Zagreb, Kišpatičeva 12, 0000 Zagreb, Croatia / Phone: +385-98-9253-461 / E-mail: anica.milinkovic@outlook.com

ORCID: Anica Milinković, <https://orcid.org/0000-0002-3456-9540> • Petra Grubić Rotkvić, <https://orcid.org/0000-0002-2587-1932> • Mia Maria Jurinjak, <https://orcid.org/0009-0003-2583-137X> • Ana Šutalo, <https://orcid.org/0000-0002-7644-6362> • Ivana Jurca, <https://orcid.org/0000-0002-0607-3361> • Majda Vrkić Kirhmajer, <https://orcid.org/0000-0002-1340-1917>

Introduction: Inferior vena cava (IVC) thrombosis is associated with high morbidity. Common causes include the presence of an IVC filter, malignancy, congenital abnormalities, thrombophilia, or trauma. Delayed treatment may lead to post-thrombotic syndrome or pulmonary embolism with potentially fatal outcome^{1,2}.

Case report: 44-year-old male with no significant medical history presented to the emergency department with acute pain in the left groin and swelling of the left leg. Duplex ultrasound showed slow flow in the dilated left common femoral vein, with absent respiratory flow modulation, suggesting a proximal obstruction. Computed tomography (CT) venography revealed narrowing in the suprarenal segment of the IVC with intraluminal calcification and stenosis of the right renal vein, accompanied by formed venous collaterals, suggesting unrecognized prior thrombosis. Partial thrombosis of the infrarenal IVC and complete thrombosis of left iliac veins was also noted, along with bilateral lobar pulmonary embolism with no signs of right heart strain (**Figure 1**). Upon admission, the patient was immediately started on low molecular weight heparin. Further workups for thrombophilia, malignancy and urological pathology returned negative. Detailed history revealed that he was an ultra-distance trail runner, a factor that may have contributed to thrombosis via dehydration and endothelial injury. Given the favorable clinical course he was discharged with a recommendation for long-term anticoagulation

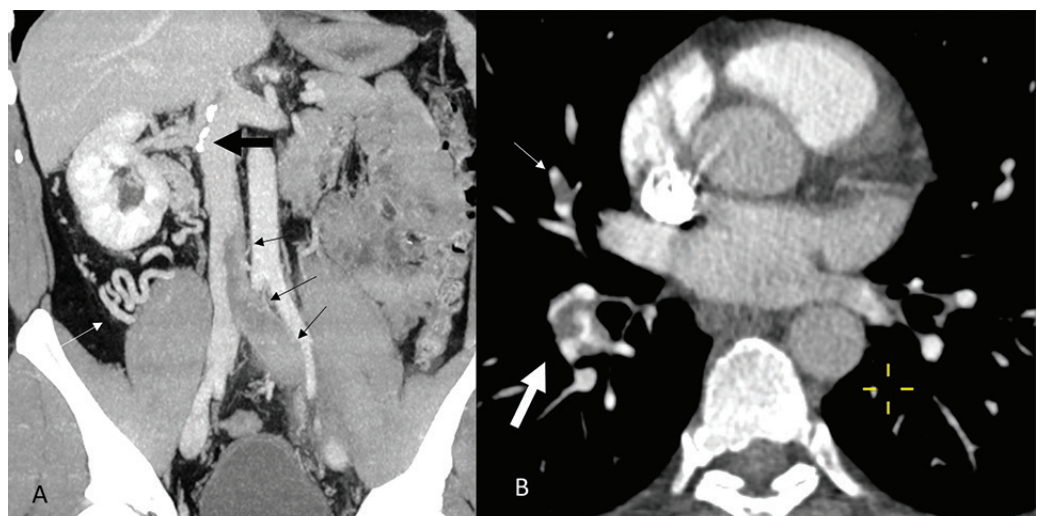


FIGURE 1. Computed tomography venography showing acute left ilio caval thrombosis (black thin arrows). Amorphous calcification in the lumen of the pararenal inferior vena cava and ostium of the right renal vein (black thick arrow) accompanied by venous collaterals around the left kidney (white arrow) suggesting prior thrombosis (A). Acute emboli in the right lobar (thick arrow) and segmental (thin arrow) pulmonary arteries (B).

RECEIVED:
October 9, 2024

ACCEPTED:
October 31, 2024



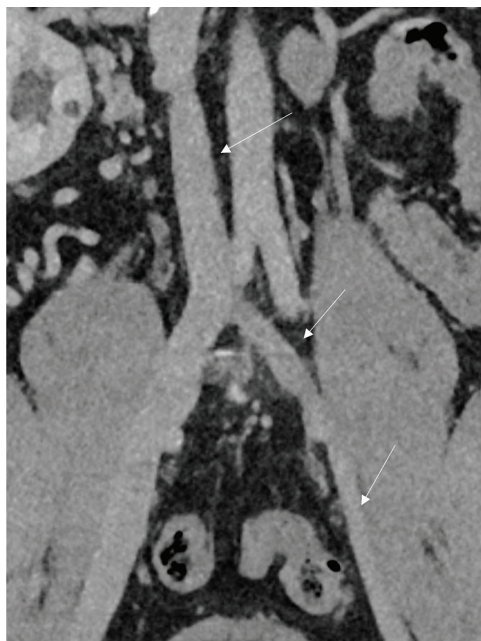


FIGURE 2. Computed tomography venography in a 5-month follow-up revealing resolution of prior thrombosis in the inferior vena cava and left iliac veins (white arrows).

with rivaroxaban. Follow-up at 2 months showed normalization of D-dimers and sonographic improvement. After 5 months, CT venography revealed significant recanalization of affected vessels, and the patient was in excellent clinical condition, without venous claudication or leg swelling (**Figure 2**).

Conclusion: IVC thrombosis is an under-recognized condition, commonly associated with malignancy or thrombophilia. Abdominal trauma, micro-trauma, and dehydration related to intense physical exertion, particularly in athletes, can also contribute to its development. Current guidelines for IVC thrombosis management are limited, but anticoagulation remains essential, while interventional treatment may be considered depending on the disease severity^{2,3}.

LITERATURE

1. Hollingsworth CM, Mead T. Inferior Vena Caval Thrombosis. [Updated 2023 Aug 20]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK537175/>
2. Alkhouli M, Morad M, Narins CR, Raza F, Bashir R. Inferior Vena Cava Thrombosis. *JACC Cardiovasc Interv.* 2016 Apr 11;9(7):629-43. <https://doi.org/10.1016/j.jcin.2015.12.268>
3. McAree BJ, O'Donnell ME, Fitzmaurice GJ, Reid JA, Spence RA, Lee B. Inferior vena cava thrombosis: a review of current practice. *Vasc Med.* 2013 Feb;18(1):32-43. <https://doi.org/10.1177/1358863X12471967>