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Case Report

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Avoiding the Surgery! Conservative Management of Extensive Bilateral DVT in a Case of Complex Hypercoagulability

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ABSTRACT

Background: Venous thromboembolism (VTE) can often be triggered by the convergence of multiple predisposing factors, making it challenging to identify the primary trigger in complex cases. Based on the clinical profile, management ranges from medical to surgical interventions. This case highlights the successful conservative management of extensive bilateral deep vein thrombosis (DVT) spanning from the IVC filter down to the lower extremity veins in a patient with multiple coexisting risk factors and hypercoagulable states.

Case Presentation: An 88-year-old male presented with acute swelling of the right lower extremity. His past medical history is significant for type 2 diabetes mellitus, hypertension (HTN), chronic kidney disease (CKD), prostate cancer, monoclonal gammopathy of undetermined significance (MGUS), and prior thrombotic events, including a saddle pulmonary embolism (PE) managed with Inferior vena cava (IVC) filter placement. There was a recent hospitalization for a urinary tract infection (UTI) with sepsis, which further compounded his thrombotic risk. Imaging confirmed extensive bilateral DVT below the IVC filter, and laboratory tests revealed hypercoagulability associated with antiphospholipid syndrome (APS).

Management: Considering the patient's age, CKD, and extensive thrombosis, a multidisciplinary approach was adopted. The patient was managed conservatively with heparin followed by warfarin, achieving a therapeutic INR of 2-3. Surgical intervention was avoided as the vascular surgery team deemed anticoagulation sufficient to address the extensive DVT. The patient was discharged on warfarin and remained asymptomatic at a four-week follow-up, with no recurrence of thrombotic events.

Discussion: This case illustrates the challenges of managing VTE in patients with multiple overlapping risk factors, such as advanced age, chronic illness, recent infections, and hypercoagulable conditions like APS. It emphasizes the role of individualized, conservative management in extensive and potentially fatal DVTs. We showcase a successful non-surgical approach that highlights the efficacy of anticoagulation therapy and the importance of multidisciplinary collaboration in achieving favourable outcomes in high-risk patients.

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Introduction

VTE can be a multifactorial condition, often resulting from the interplay of multiple predisposing factors, including advanced age, chronic illness, malignancy, infections, and underlying hypercoagulable states. While standard anticoagulation is sufficient for managing uncomplicated DVTs, complex cases such as extensive bilateral thromboses involving the IVC and the lower extremities pose significant challenges in management. These scenarios frequently raise the question of whether surgical intervention is required to prevent life-threatening complications such as recurrent thromboembolism or post-thrombotic syndrome.

This case report focuses on the conservative management of extensive bilateral DVTs in a high-risk elderly patient with a history of multiple thrombotic risk factors, including APS, CKD, and prior placement of an IVC filter. Despite the severity of the thrombosis and the presence of overlapping risk factors, surgical intervention was avoided. Instead, a multidisciplinary approach focussed on anticoagulation therapy was successfully employed to manage the condition, highlighting the potential of medical management even in complex thrombotic scenarios. Through this case, we aim to highlight the clinical considerations, challenges, and decision-making processes in managing extensive and multifactorial DVTs. We emphasize the importance of individualized treatment strategies, interdisciplinary collaboration, and close monitoring in achieving favourable outcomes without the need for invasive procedures. This report reinforces the growing recognition that when carefully tailored to a patient's unique clinical profile, conservative management can serve as a safe and effective alternative to surgery in appropriately selected cases.

Case Presentation

Clinical Context and Patient Overview

An 88-year-old male presented to the emergency department with a complex medical history and acute right lower extremity swelling five days after he was discharged from a recent hospitalization for a urinary tract infection. The patient's medical history was marked by multiple severe comorbidities consisting of type 2 diabetes mellitus, hypertension, chronic kidney disease, monoclonal gammopathy of undetermined significance, prostate cancer status post-radiation, and previous nephrolithiasis with stent placement.

Pre-Clinical Events

This was a medically complex clinical trajectory for the patient. Following a hospitalization for bile peritonitis, which had required surgical intervention, the patient had a protracted course of recovery complicated by SARS-CoV-2 infection at a skilled nursing facility. This was followed by an episode of saddle pulmonary embolism and left lower extremity DVT managed by percutaneous thrombectomy and IVC filter placement. In the context of his current presentation, he had just been discharged from a week-long hospitalization for a complicated urinary tract infection due to Klebsiella pneumoniae with associated sepsis.

Physical Examination

Upon physical examination, the patient exhibited unilateral lower extremity swelling, manifesting as pronounced pitting edema and focal tenderness. The acute presentation of right leg swelling, occurring shortly after recent medical interventions and hospitalizations, raised immediate clinical concerns about potential thrombotic complications.

Diagnostic Findings

Laboratory investigations showed a hypercoagulable state, as evidenced by elevated beta-2 glycoprotein levels and positive lupus anticoagulant. Further diagnostic workup showed an extensive and complex thrombotic condition. Extensive right lower extremity deep vein thrombosis was identified by Doppler ultrasonography, and a CT venogram showed bilateral deep vein thromboses located inferior to the previously placed IVC filter [Images 1, 2 & 3]. Routine laboratory parameters were within normal ranges. Keeping in mind the complete patient history, the diagnostic imaging, and the laboratory findings, the presence of APS complicated this patient's condition in addition to the preexisting hypercoagulable state.

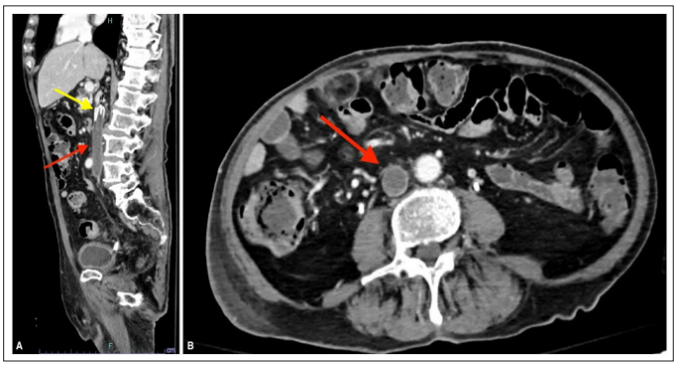

Image 1: CT Venogram Showing DVT in the IVC

1A: Sagittal view - IVC filter (yellow arrow) and DVT (red arrow)
1B: Axial view - DVT in the IVC (red arrow)

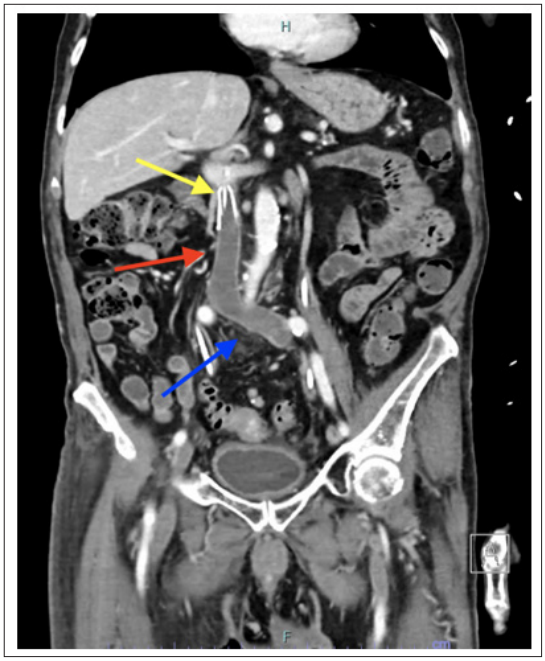

Image 2: Coronal View of the CT Venogram Showing DVT

Yellow arrow: IVC filter
Red arrow: DVT in the IVC
Blue arrow: DVT in the left common iliac vein

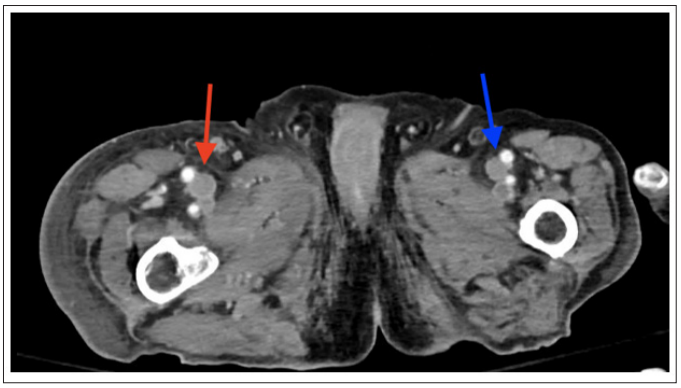

Image 3: Axial View of the CT Venogram Showing DVT in the Right Common Femoral Vein (red arrow) and the Left Common Femoral Vein (blue arrow)

Management

Based on this patient's complex medical background and the extent of his thrombotic involvement, an interdisciplinary approach was considered for management. Acute management focused on resolving thrombosis and starting anticoagulation with intravenous heparin. Extensive DVTs were a pressing concern, and aggressive steps were required to correct such conditions with careful planning of bridge therapy. Transitioning patients from heparin to oral warfarin with cautious overlapping of heparin during anticoagulation ensures their continuous protection.

The anticoagulation strategy was rather sensitive, taking into account the old age of the patient along with chronic kidney disease and positivity for antiphospholipid antibody syndrome. Gradual titration of the dose of warfarin was done to obtain a therapeutic International Normalized Ratio (INR) in the 2-3 range. Vascular surgery and hematology departments were consulted in developing an all-inclusive treatment regimen.

Vascular surgery assessed the patient but advised against surgical intervention, strongly suggesting medical management. The haematology team confirmed the diagnosis of APS and illuminated the long-term anticoagulation approach tailored to the patient's unique clinical profile.

Outcome and Follow-up

The patient was discharged on warfarin with a structured plan for regular INR monitoring. Four weeks of follow-up showed that the patient remained asymptomatic and free of further thrombotic events, validating the comprehensive management approach.

Discussion

Venous thromboembolism (VTE) is a complex clinical condition, particularly in older patients with complex medical histories and multiple comorbidities. This case demonstrates the complex interactions of risk factors contributing to thrombotic events, emphasizing the crucial need for comprehensive and individualized management [1].

The patient's clinical course exemplifies the multiple predisposing factors for VTE, including advanced age, prolonged immobility, recent surgical intervention, COVID-19 infection, and the newly diagnosed antiphospholipid antibody syndrome (APS). These factors elevate thrombotic risk individually, and their convergence creates a particularly challenging clinical scenario. The COVID-19 pandemic has further complicated thrombosis management, with emerging evidence suggesting dual mechanisms of thrombotic risk: systemic hypercoagulability and endothelial injury [2].

A key aspect of this case was the successful management of extensive bilateral deep vein thrombosis without the necessity for surgical interventions. Traditional approaches may have considered more invasive strategies; however, our multidisciplinary team demonstrated that organized medical management could be sufficient to address the patient's complex thrombotic problem. The decision to employ anticoagulation therapy, carefully tailored to the patient's unique clinical profile, underscores the potential of individualized medical management in patients at increased risk.

The role of the IVC filter in this particular case should be explored in depth. While the filter likely would have decreased the patient's chance of a life-threatening pulmonary embolism at the time of his initial evaluation, long-term placement is associated with possible complications, including IVC thrombosis and DVT related to the filter [3,4]. Our approach focused on medical management and close monitoring without further surgical interventions that may result in additional complications.

Anticoagulation management required a delicate balance, especially given the patient's advanced age, chronic kidney disease, and diagnosis of APS. Although guideline-compliant, the initial reduction in the apixaban dose may have increased the risk of thrombosis. This highlights the need for individualized anticoagulation management in high-risk populations. The switch to warfarin, guided by expert haematological advice, demonstrated the need for a more tailored approach to anticoagulation in patients with APS [5,6].

The case further emphasizes the added efficiency of warfarin in the management of APS, particularly in patients with the triple-positive condition. Current studies, including TRAPS, have provided compelling proof of the efficacy of warfarin in this challenging clinical scenario [6]. Our management strategy, consisting of careful monitoring of INR and structured anticoagulation, aligns with these emerging research conclusions. This case strongly emphasizes the importance of a multi-disciplinary approach. The combined contribution from vascular surgery, haematologists, and primary care teams ensured an all-around management plan that emphasized safe patient outcomes. The effective follow-up after four weeks indicated that the patient remained symptom-free and free of secondary thrombotic events and, therefore, validated this integrated approach.

The Following are some Critical Insights Concerning the Management Strategy Used for this Case:

- Customized anticoagulation strategies are needed for patients at higher risk.
- Surgery is not always necessary, even in complex thrombotic conditions.
- Thorough monitoring and inter-disciplinary collaboration can effectively handle challenging clinical scenarios.
- The interplay of multiple risk factors requires a comprehensive and advanced approach to diagnosis and treatment.

This case report contributes to the growing body of literature emphasizing the importance of tailored, patient-centred approaches to managing complex thrombotic disorders. It highlights the success of comprehensive medical management in effectively managing challenging thrombotic clinical scenarios without the necessity of surgical interventions.

References

1. Pastori D, Cormaci VM, Marucci S, Franchino G, Del Sole F, et al. (2023) A Comprehensive Review of Risk Factors for Venous Thromboembolism: From Epidemiology to Pathophysiology. International Journal of Molecular Sciences 24: 3169.
2. Iba Toshiaki, Levy Jerrold H, Levi Marcel, Connors Jean Marie, Thachil Jecko (2020) Coagulopathy of Coronavirus Disease 2019. Critical Care Medicine 48: 1358-1364.
3. Kaufman JA, Barnes GD, Chaer RA, Cuschieri J, Eberhardt RT, et al. (2020) Society of Interventional Radiology Clinical Practice Guideline for Inferior Vena Cava Filters in the Treatment of Patients with Venous Thromboembolic Disease: Developed in collaboration with the American College of Cardiology, American College of Chest Physicians, American College of Surgeons Committee on Trauma, American Heart Association, Society for Vascular Surgery, and Society for Vascular Medicine. J Vasc Interv Radiol 31: 1529-1544.
4. Nazzal M, Chan E, Nazzal M, Abbas J, Erikson G, et al. (2010) Complications related to inferior vena cava filters: a single-center experience. Ann Vasc Surg 24: 480-486.
5. Stevens SM, Woller SC, Kreuziger LB, Bounameaux H, Doerschug K, et al. (2021) Antithrombotic Therapy for VTE Disease: Second Update of the CHEST Guideline and Expert Panel Report. Chest 160: e545-e608.
6. Woller SC, Stevens SM, Kaplan D, Wang TF, Branch DW, et al. (2022) Apixaban compared with warfarin to prevent thrombosis in thrombotic antiphospholipid syndrome: a randomized trial. Blood Adv 6: 1661-1670.