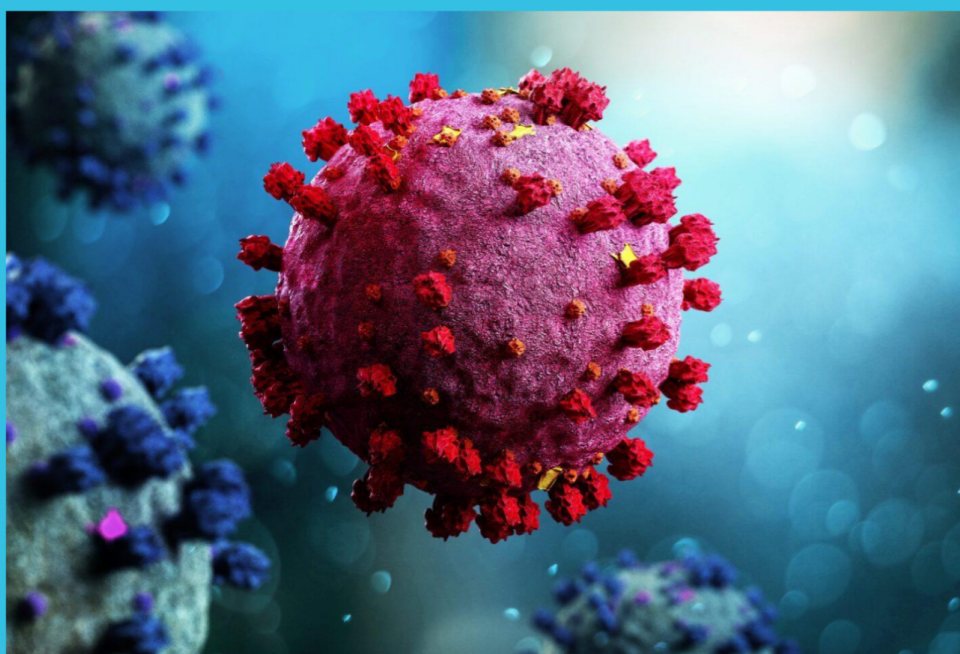


# Understanding the uptake of venous thromboembolism in Covid-19 infected cancer patients

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## Case Study

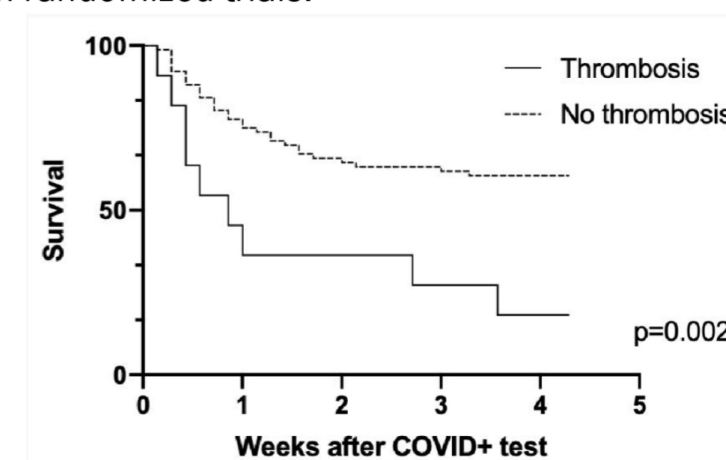
A 49-year-old female, with past medical history of adenocarcinoma of the lung, vulvar intraepithelial neoplasia III, and benign breast masses, is evaluated for acute left leg pain and swelling. She tests positive for Covid-19 upon admission. Patient was hemodynamically stable, afebrile, and maintaining oxygen saturation on room air. Physical exam was remarkable for faint rhonchi at bilateral lung bases and left lower extremity edema with moderate tenderness to palpation of the left calf. Bilateral doppler ultrasound of the lower extremities demonstrated extensive deep vein thrombosis from the left femoral vein to the calf. CT pulmonary angiogram showed saddle pulmonary embolism. She was admitted for acute extensive thromboembolism and placed on isolation precautions for Covid-19. An intravenous heparin drip was initiated, and interventional radiology was consulted for mechanical thrombectomy.

## Discussion

Infections may be associated with coagulation disorders and result in thromboembolism as a potential complication. This has been well documented in infections such as Salmonella typhoid and in cases of sepsis, where disseminated intravascular coagulation may occur with greater incidence. Emerging data suggests an increased prevalence of venous thromboembolism (VTE) in Covid-19 infections, especially in those with severe disease requiring hospitalization. The risk of VTE is highest in active infection or weeks after due to inflammation and endothelial injury caused by the presence of the virus and its products. We also know that malignancy and certain anti-tumor therapies are independent risk factors for VTE. The presence of malignancy causes a hypercoagulable state resulting in increased thrombotic activity and decreased fibrinolytic activity. It is unknown whether the risk of VTE in cancer patients with Covid-19 is additive or greater when compared to other infections.

## Conclusion

Despite the availability of effective and safe therapeutic options, VTE is often under-recognized and sub-optimally managed. An increased risk of venous thromboembolism with Covid-19 infection has been well documented, particularly in critically ill, hospitalized patients. The presence of cancer, as well as immunotherapies, can further elevate this risk of VTE. Normal screening methods for DVT including D-dimer serve little value in cancer population because the baseline d-dimer in malignancy is typically elevated. The cases described highlight the association between hypercoagulability in Covid-19 infection in patients with active malignancy. The threshold for evaluation of potential VTE for these patients should be low in the presence of Covid-19 infection. Identifying more cases helps providers understand what to expect and how to improve management of this disease process. The topic also presents the question of duration of therapeutic anticoagulation following an episode of VTE in cancer patients with Covid-19 infection. The role of extended prophylactic anticoagulation should be studied in such patients in randomized trials.



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