## Pressed for time: Implications of a delayed presentation of venous thromboembolism precipitated by COVID-19 and May-Thurner Syndrome

*Editor*

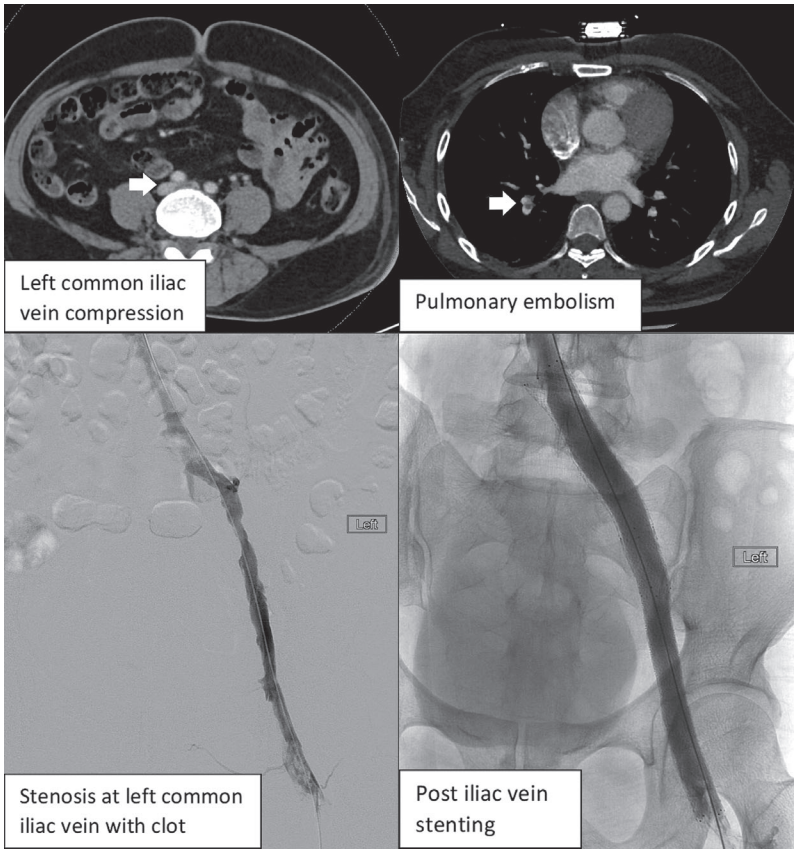
Coronavirus disease 2019 (COVID-19) has been reported to be associated with arterial and venous thrombosis and manifestations include acute limb ischemia, deep venous thrombosis (DVT) or pulmonary embolism (DVT)[1]. The presence of COVID-19 infection may precipitate underlying prothrombotic lesions like iliac vein compression although this has not been reported prior.

To date, there are no inter-societal consensus guidelines on the role and optimal dose of chemical prophylaxis for venous thromboembolism (VTE) in COVID-19 patients, with most COVID-19 guidelines being individual societal level guidelines[2]. The American Society of Hematology and American College of Cardiology both state that all patients hospitalized with COVID-19 should receive pharmacologic VTE prophylaxis unless a specific contraindication (*e.g.* active bleeding) exists. Similarly, the American Venous Forum issued a statement suggesting that patients with COVID-19 admitted to hospital should be placed on chemical prophylaxis and that risk assessment should be performed at admission to identify very high risk patients (Caprini Score > 8) who may benefit from higher than normal doses of anticoagulation.

Our institution recently managed a case of delayed presentation of DVT complicated by PE in a COVID-19 positive migrant worker who presented on the 22nd day post COVID-19 diagnosis (*Fig. 1*). As per local management of confirmed COVID-19 patients, he had been isolated in a community isolation facility as he did not have radiological evidence of pneumonia and had not been admitted to an acute care hospital. Work up showed left common iliac vein compression by the overlying right common iliac artery (May-Thurner syndrome) and the thrombophilia work up was unremarkable. Given the chronology of events, we believe that the DVT was contributed by the recent COVID-19 infection.

One of the considerations in managing this case was deciding if endovascular management was required given COVID-19 infection which likely had been a precipitating factor and our need to triage surgery based on urgency during this pandemic[3-4]. Iliac vein compression has also been described

**Fig. 1 Clinical images, Pre and Post iliac vein stenting**



to be a permissive lesion and can be present in up to 66% of the asymptomatic general population[5]. Following a risk benefit discussion, endovascular thrombolysis, intravascular ultrasound, angioplasty and iliac vein stenting was performed to reduce the risk of subsequent post thrombotic syndrome for our patient who had minimal comorbidities and no contraindications to treatment.

The role for chemical prophylaxis for DVT in non-hospitalised patients and following discharge is still unclear. Given the large numbers of COVID-19 patients in Singapore, patients who have minimal symptoms are not treated in acute care hospitals and are quarantined in community isolation facilities with on-site medical coverage to right site their care. This is also consistent with the way COVID-19 has made us rethink how we practice medicine[6]. Our patient had minimal symptoms, had been physically active while under quarantine and had not been on VTE chemical prophylaxis. More areas for future research would include the classification of VTE risk in COVID-19 patients for prophylaxis, the role of D-dimer as a screening tool on admission or following discharge and the role of prophylaxis of DVT in well non-hospitalised patients. These are time sensitive and of increasing importance given the increasing number of COVID-19 patients being managed in the community.

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