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Pulmonary Embolism as an Acute Presentation of Covid-19; A Rare Complication not to be Missed

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Abstract

Coronavirus disease 2019 (COVID-19) has caused an unprecedented global public health challenge since the first reported case at the end of December 2019. It can range from asymptomatic infections to multiorgan failure and death. We report a case of 53-year-old gentleman who presented with dyspnea alone with no other systemic symptoms and was diagnosed to have COVID-19 related Pulmonary Embolism. He was started on anticoagulation and has made an uneventful recovery. Our report is unusual as very few cases have been reported in literature with similar diagnosis of COVID- related Pulmonary Embolism at first presentation. Physicians need to be aware of this serious condition especially when dealing with COVID-19 positive patients, which can be potentially life threatening if not diagnosed on time.

Keywords: COVID-19; dyspnea; Pneumonitis; Pulmonary Embolism; anticoagulation

Introduction

World Health Organization declared COVID-19 outbreak as a Public Health Emergency of International Concern on 30th January 2020, and later this was declared as a global pandemic. It has subsequently caused a havoc affecting many countries resulting in significant morbidity and mortality. The world economy has had a major impact due to this novel coronavirus infection so far and there are no signs yet of this virus declining. The infection mainly affects the airways epithelium and patients present with respiratory symptoms and fever. However, it's not unusual for a wide variety of signs and symptoms involving other organ systems too.

Case Presentation

A 53-year-old male gentleman presented to a designated COVID health Centre with symptoms of acute breathlessness. He had a history of contact with COVID positive patient three days ago. He had no past medical history of note and was not taking any regular medications. There was no family history of any significance and he was an Engineer by profession. On examination, he had

temperature 36.9 C, Respiratory rate 26 per minute, oxygen saturations on air 81 %, Blood pressure 129/90 mm Hg and heart rate 96 beats per minute. He was immediately put-on high flow oxygen and saturations gradually improved to 95 % in emergency room of the primary health care center. He had nasopharyngeal and oropharyngeal swabs for COVID-19 real-time reverse transcription polymerase chain reaction (RT-PCR) whilst still at the COVID center and transferred to secondary care emergency services.

On arrival at the hospital, he was maintaining saturations at 95 percent via a non-rebreather mask with Oxygen flow rate of 15 liters per minute. Rest of his vital parameters were normal. Chest X-ray revealed infiltrates in both lower zones highly suggestive of COVID Pneumonitis. An Emergency CT Pulmonary angiogram was done four hours after admission which showed filling defects in the right lower lobe pulmonary artery divisions suggestive of pulmonary embolism (PE) and bilateral diffuse coalescent ground glass opacities in both upper and lower lobes (Figure 1). RT-PCR was reported positive for COVID-19 the following day.

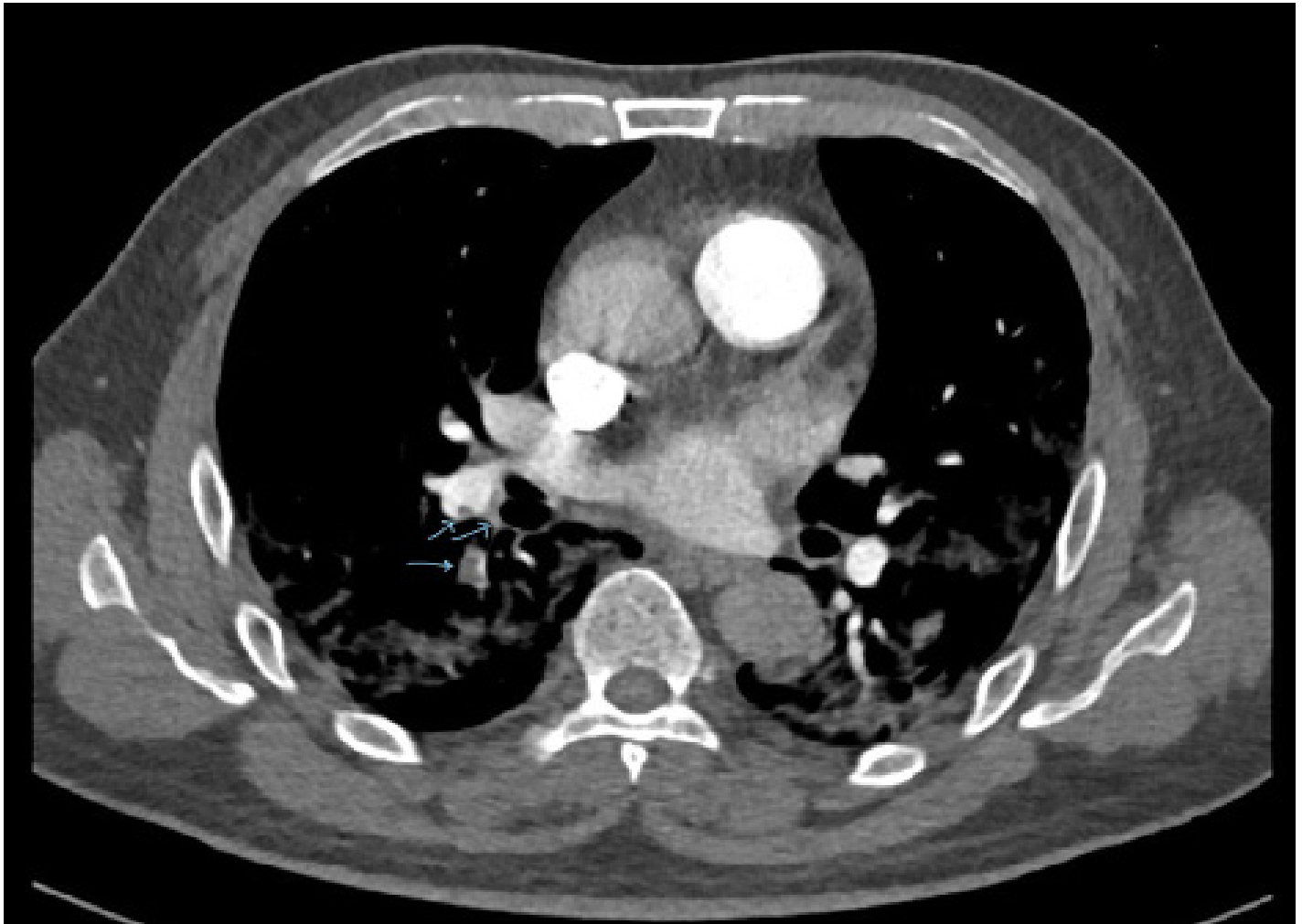


Figure 1: showing right pulmonary artery thrombus.

He was started on the local COVID-19 pneumonia treatment protocol. Therapeutic dose of low molecular weight Heparin was also initiated the same day following diagnosis of PE. His oxygen requirement decreased gradually over next few days and was maintaining normal saturations on room air. He was started on Rivaroxaban on sixth day of hospital admission and was discharged five days later. He is being monitored in COVID-19 recovery clinic and remains well so far six months since his initial diagnosis.

Discussion

COVID-19 predominantly causes lung parenchymal inflammation, but it is not unusual to see pulmonary vascular pathology such as pulmonary embolism (PE). In this reported case, patient presented with dyspnoea alone which can be the only symptom of PE in otherwise healthy but at-risk individuals. PE is a serious condition and reportedly contributes to 5-10% of in hospital deaths [1]. The incidence of PE has been reported to be around 2.6–8.9% of COVID-19 hospitalized patients and up to one-third in patients admitted to intensive care unit (ICU)

despite prophylactic anticoagulation [2]. Clinicians should be aware of this potential complication as a recent meta-analysis highlighted that PE is significantly under-diagnosed in COVID-19 [3].

COVID-19 associated coagulopathy is increasingly being recognised and the mechanisms include complement induced systemic hyper inflammatory state (cytokine storm) leading to lung injury as seen in severe COVID-19 cases, lymphocyte exhaustion and immune paresis. Further imbalance of homeostatic interactions between complement and coagulation pathways results in net pro-coagulant state causing microthrombi in blood vessels [4]. In a large multi-centre study, PE in COVID-19 was found to be primarily due to Pulmonary Intravascular Coagulopathy, unlike the thromboembolic mechanisms associated with non-COVID-19 related PE. As in our case, elevated CRP and male gender were also found to be independent risk factors [5].

Thrombolysis is indicated if there is persistent

hemodynamic compromise but can be risky. Refractory hypoxia alone is not an indication for thrombolysis and should be medically managed with anticoagulation [6]. Hence our patient did not receive thrombolysis despite significant hypoxia and was only managed with anticoagulation. Therapeutic anticoagulation is the cornerstone of managing PE. Selecting an appropriate medication and dosage depends on underlying comorbidities such as hepatic or renal dysfunction, thrombocytopenia, and gastrointestinal function [7]. D-dimer values may have a potential to guide anticoagulation therapy and evaluate prognosis in these patients [8].

Long term management of COVID related PE is same as PE due to other causes, which is oral anticoagulants for a term dictated by the severity of PE and associated prothrombotic risk factors [7]. Inferior vena cava filter is considered in recurrent PE despite optimal anticoagulation, if patients have absolute contraindications to anticoagulation or in those who have had anticoagulation related complications [9].

Conclusion

The pathogenicity of COVID-19 associated coagulopathy and related complications is still being extensively researched. COVID-19 related PE even though rare, has to be kept in mind by medical practitioners when dealing with suspected COVID-19 patients with dyspnea, as it can be fatal if not recognized early.

References

1. Alikhan R, Peters F, Wilmott R, Cohen AT (2004) Fatal pulmonary embolism in hospitalised patients: a necropsy review. *J Clin Pathol* 57(12): 1254-1257.
2. Sakr Y, Giovini M, Leone M, Pizzilli G, Kortgen A, et al (2020) Pulmonary embolism in patients with coronavirus disease-2019 (COVID-19) pneumonia: a narrative review. *Ann Intensive Care* 10: 124.
3. Roncon L, Zuin M, Barco S, Valerio L, Zuliani G, et al. (2020) Incidence of acute pulmonary embolism in COVID-19 patients: Systematic review and meta-analysis. *Eur J Intern Med* 82: 29-37.
4. Chauhan AJ, Wiffen LJ, Brown TP (2020) COVID-19: a collision of complement, coagulation and inflammatory pathways. *J Thromb Haemostasis* 18: 2110-2117.
5. Fauvel C, Weizman O, Trimaille A, Mika D, Pommier T, et al. (2020) Critical Covid-19 France Investigators. Pulmonary embolism in COVID-19 patients: a French multicentre cohort study. *Eur Heart J* 41(32): 3058-3068.
6. Konstantinides SV, Meyer G, Becattini C, Bueno H, Geersing GJ, et al. (2020) ESC Scientific Document Group. 2019 ESC Guidelines for the diagnosis and management of acute pulmonary embolism developed in collaboration with the European Respiratory Society (ERS). *Eur Heart J* 41(4): 543-603.
7. Bikdeli B, Madhavan MV, Jimenez D, Chuich T, Dreyfus I, et al. (2020) COVID-19 and thrombotic or thromboembolic disease: implications for prevention, antithrombotic therapy, and follow-up. *J Am Coll Cardiol* 75(2950): 2973.
8. Ooi MWX, Rajai A, Patel R, Gerova N, Godhamgaonkar V, et al. (2020) Pulmonary thromboembolic disease in COVID-19 patients on CT pulmonary angiography - Prevalence, pattern of disease and relationship to D-dimer. *Eur J Radiol* 132: 109336.
9. Kearon C, Akl EA, Ornelas J, Blaivas A, Jimenez D, Bounameaux H, et al. (2016) Antithrombotic Therapy for VTE Disease: CHEST Guideline and Expert Panel Report. *Chest* 149(2): 315-352.

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