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A Clot Making Virus: A Case Report of PE in a Young Female with COVID-19

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Abstract

Coronavirus disease is a global pandemic which has emerged from china. It usually presents with respiratory symptoms, like flu and fever but it can also have many atypical presentations. Here we present a case of 27-years old girl who was diagnosed as having COVID-19 disease and was having mild disease which was advised a treatment. She again reported back to hospital after two weeks of diagnosis with severe shortness of breath and was diagnosed as having pulmonary embolism.

Keywords: Coronavirus • Pulmonary embolism

Introduction

Maxillary COVID-19 is a disease caused by novel coronavirus, a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 virus). It was first reported in Wuhan city of china [1] and now the whole world is facing its fearful disease as global pandemic [2]. It has a rapid transmission usually by respiratory route. Patients affected by this virus usually has mild symptoms which are mostly respiratory in origin such as flu, cough, shortness of breath, diarrhea and abdominal pain but this virus is emerging with very atypical presentations. Infection with this novel coronavirus is a procoagulant state and so patients can present with heart attack, stroke or pulmonary embolism. There are many cases till now which showed that patients with COVID-19 disease also has associated pulmonary embolism. It has shown in study of Gian Battista that COVID-19 patients can have thrombo-embolism without underlying risk factors [3]. A patient having this disease usually have severe pneumonia which also presents with cough, fever and shortness of breath and so it's very difficult to differentiate between COVID-19 pneumonia and it's complications like pulmonary embolism. Here we present a case of young girl of COVID-19 disease who had associated pulmonary embolism.

Case Presentation

A 27-years-old female came with complaint of severe left sided chest pain for 1 week and shortness of breath for 4 days, pain was pleuritic in nature. It was sharp and increased on deep breaths and relieved with rest. She was previously tested for coronavirus and that came out to be positive. She was a nursing home worker and developed fever and dry cough for which she was tested for COVID. The lady had no previous premorbid conditions and she was not on any medications apart from need based pain killers. She had tachycardia on examination and normal cardiovascular and chest examination including the other observations. The ECG showed sinus tachycardia and chest X-ray was normal as well. The lab work was normal including the troponins and D-Dimers

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were mildly raised to more than 600 ng/mL and a computerized tomography pulmonary angiography was advised which showed segmental pulmonary embolism involving the posterior basal segment of the left lower lobe with associated area of opacity depicting the pulmonary hemorrhage/infarction. The patient was already put on treatment dose enoxaparin subcutaneously and then later shifted onto Direct acting oral anticoagulant i.e., apixaban and a follow-up was arranged in anticoagulation clinic for further management and surveillance.

Discussion

The COVID-19 disease usually presents in mild form with cough and flu from which patients usually recover and have their normal health. In a meanwhile, it can be a deadly disease with sepsis and respiratory distress with septic shock [4,5] and can lead to many complications. Although information about disease spectrum and presentations of COVID-19 disease is emerging with time but it usually presents with flu, fever, cough, shortness of breath, diarrhea and abdominal pain [1,2]. Infection caused by novel coronavirus is a procoagulant state likely due to severe endothelial damage and cytokine storm which can cause disseminated intravascular coagulation and can lead to thrombo-embolic complications. It is usually seen that patient's condition deteriorates in second week of illness owing to cytokine storm as with our case [1]. Gian Battista mentioned in his report that severe infections can also be a precipitating agent in causing thrombo-embolism 3. A cardiovascular complication in COVID-19 infection also includes arterial thrombosis along with venous thrombosis [4-10]. Some studies have shown an interesting point that many patients who previously had been on prophylactic dose of anti-coagulants still developed pulmonary embolism as a part of thrombo-embolism as a complication of coronavirus infection. This shows that procoagulant effect is so strong that even a prophylactic dose of anti-coagulation is not enough to cope with cytokine storm and endothelial damage to prevent thrombo-embolism. This disease is well known in causing hypercoagulable state with raised levels of lactate dehydrogenase, ferritin, C-reactive protein and interleukins. In such cases, platelets count, disseminated intravascular coagulation profile, D-Dimers and fibrinogen levels can help diagnose impending thrombo-embolic complication like pulmonary embolism. Pulmonary embolism has high mortality but it is a potentially treatable condition [5]. Patients with pulmonary embolism usually presents with sudden onset of severe dyspnea and worsening hypoxia [1]. Such patients can also have right heart failure due to massive pulmonary embolism. Patient's electrocardiography can also show S1Q3T3 pattern due to pulmonary embolism [2,6].

Studies have shown that there is an increased frequency of pulmonary

embolism in patients with coronavirus infection in comparison with critically ill patients [7,8]. Pulmonary embolism is usually diagnosed at mean of 12 days counted from the day of onset of symptoms. It is usually observed that a patient with pulmonary embolism and COVID-19 infection has high D-Dimers levels than patients without pulmonary embolism. There is positive co-relation between mortality and D-Dimer levels. As many cases have shown that patient with severe disease have associated pulmonary embolism, so M. Cellina and G. Oliva emphasized the importance of Computed Tomography Angiography in all patients of COVID-19 pneumonia presenting with worsening of respiratory symptoms to detect underlying associated pulmonary embolism. It is recommended that CT pulmonary angiography should be performed in every COVID-19 positive patient who is suspicious of having pulmonary embolism as evident by severity of symptoms, raised D-Dimers, electrocardiographic findings and high suspicion. Keeping in mind atypical presentations of COVID-19 infection, emergency physicians should know about association of this infection and pulmonary embolism for good decision making, proper investigations and further management plan accordingly. Anti-coagulation should be used in COVID-19 positive patients if not contra-indicated as studies have also shown the mortality benefits of anti-coagulation in these patients. It is also recommended to increase the prophylactic anti-coagulant dose to higher levels of anti-coagulation as patients on prophylactic dose also showed pulmonary embolism [9,10].

Conclusion

It is very important to foresee the risk of a clot anywhere in the body after acquiring coronavirus infection and subsequent treatment should be started on the suspicion which can be life-saving as well as improving the quality of life later after getting cured of the virus itself.

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