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Case Study

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SPONTANEOUS RETROPERITONEAL HEMATOMA; UNCOMMON COMPLICATION OF ANTICOAGULATION IN PATIENT WITH SARS-COV-2 PNEUMONIA: CASE REPORT

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ABSTRACT

Coronavirus disease 2019 is caused by SARS-CoV-2 is new emergent infection, declared global pandemic by world health organization. Thromboembolic manifestation or thromboembolic complication in COVID-19 patients has been well described in medical literature. Which mandates the use of either therapeutic or prophylactic anticoagulation in critically ill COVID-19 patients. Enoxaparin is frequently used as agent of choice for anticoagulation in ICU because of several advantages over other anticoagulant. We report a case of spontaneous retroperitoneal hematoma in critically ill COVID-19 patient, receiving therapeutic anticoagulation with Enoxaparin. Which was successfully managed with aggressive resuscitation and endovascular treatment. Spontaneous retroperitoneal hematoma (SRH) is rare complication of enoxaparin therapy. Early diagnosis and aggressive treatment are of paramount importance, as SRH is associated with high mortality and morbidity rates. We suggest caution while using anticoagulation in COVID-19 patients.

KEYWORDS: COVID-19, Anticoagulation, Spontaneous retroperitoneal hematoma, Enoxaparin.

INTRODUCTION

Newly emergent Coronavirus disease 2019 (COVID-19) caused by Severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2), is global pandemic, is bringing new knowledge for us every day. There is still dilemma about the appropriate drug therapy in COVID-19. But most of the treatment guidelines has reached to consensus about use of either prophylactic or therapeutic anticoagulation in critically ill COVID-19 patients. We report the rare case of spontaneous retroperitoneal hematoma (SRH), following use of anticoagulation in COVID-19 patient. SHR is rare, potentially fatal complication following anticoagulation with overall incidence is 0.6 to 6%.[1] Very few cases have been reported in medical literature.[2] So far SRH is not been reported in COVID-19 patients.

CASE HISTORY

A 48 years' male patient, known case of diabetes mellitus and hypertension admitted to our hospital with history of fever, dry cough and breathing difficulty since one week. On evaluation he was in obvious respiratory distress. His significant investigations were, X-ray chest; bilateral patchy air space consolidation, Novel corona virus RNA PCR-positive. He was mechanically ventilated for adult respiratory distress syndrome (ARDS). He was treated with broad spectrum antibiotics; Piperacillin- Tazobactum 4.5 grams intravenous(IV) three times day(TDS), Teicoplanin 400 milligrams(mg) IV once a day(OD), Lopinavir-Ritonavir 200-50 mg two tablets per oral(PO) two time a day(BD), Chloroquine 150 mg PO BD, Interlukin-6 inhibitor; Tocilizumab 400 mg IV given twice 24 hours apart, steroid; methylprednisolone 40 mg IV BD. He also received two cycle of conversant plasma therapy and anticoagulation; Enoxaparin 1mg/kg two times daily, because his D-Dimer was >20000 ng/ml. on 19th day of standard intensive care management patient improved in terms of severe ARDS, weaning from ventilator was attempted. Soon after weaning trial patient developed sudden hypotension with increasing requirement of vasopressors; Noradrenaline 1 mcg/kg/min. on examination per/abdomen; abdomen was tender on right side. His investigations revealed, anemia due to acute

blood loss, disseminated intravascular coagulopathy (DIC) and renal failure. Patient was resuscitated with crystalloid fluid and blood product. Contrast enhanced computerized tomography (CT) abdomen was done which suggestive of large amount of acute spontaneous retroperitoneal bleed with active bleed on right side related to anterolateral aspect of iliopsoas and with small amount of bleed in left Iliacus muscle (see Figure 1: CT showing retroperitoneal hematoma)

Figure: 1.

Patient was referred to interventional radiologist, digital subtraction angiography done which suggestive of active bleeding from the posterior division of right internal iliac artery. Endovascular treatment was done by coiling of the bleeding branches originating from right internal iliac artery. (See Figure 2: Embolized bleeding vessel).

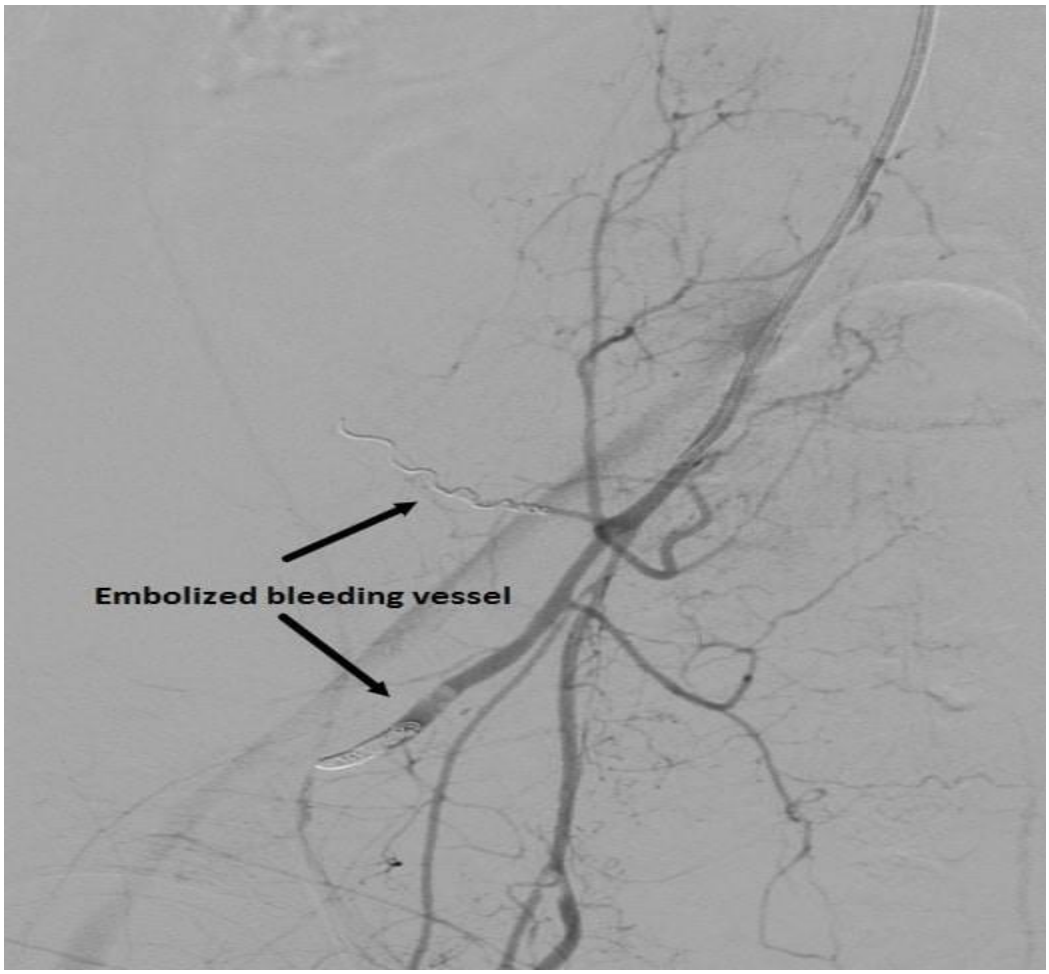

Figure: 2.

After successful endovascular treatment, patient improved, but patient required several sessions of renal replacement therapy for acute kidney injury. He was tracheostomized for prolonged ventilation and subsequently weaned from ventilator and transferred out of ICU on 46th day in stable condition.

DISCUSSION

Coronavirus disease 2019 (COVID-19) is caused by SARS-CoV-2, a newly emergent coronavirus declared global pandemic by world health organization (WHO). Approximately 15% develop severe disease and 5% have critical disease with complications such ARDS, sepsis, septic shock, thromboembolism, and/or multiorgan failure.[3] Coagulopathy is common in patients with severe COVID-19, both venous and arterial thromboembolism have been reported.[4] Coagulative abnormalities COVID-19 patients not typical of DIC seen in sepsis. In COVID-19, patient shows significantly elevated D-dimers, fibrinogen and normal platelet count.[5] Viral infections cause disruption of endothelium, activation of platelets and imbalance between pro and anticoagulant, which play the role in thrombus formation. The breakdown of clots is responsible for elevation of D-dimer markers.[5] WHO in its interim guidance for management of COVID-19 infection recommends prophylactic anticoagulation in all critically ill patients.[6] Indian Society of critical care medicine in its position statement for management of COVID-19 patients recommend therapeutic anticoagulation if D-Dimer is more than 1000 ng/ml.[7] Enoxaparin is low molecular weight heparin (LMWH) possesses several advantages.[8] Remains the best and popular choice of anticoagulant in ICU. Unfortunately, despite numerous benefits, enoxaparin use is not without risk and severe retroperitoneal bleeding has been reported.[9] Spontaneous retroperitoneal hematoma (SRH) is defined as a retroperitoneal hemorrhage that is unrelated to trauma, surgery, invasive procedures, or any underlying pathology.[9] It is a rare clinical entity associated with high mortality and morbidity.[10] Very few cases have been reported in the literature according to a review conducted by Quartey and Nelson.[2] The incidence of SRH has been reported in 0.6% to 6.6% of the patients receiving anticoagulant therapy.[1] For LMWH, SRH accounting for 5% of enoxaparin-induced complications.[10] It has been reported to occur within 5 days of enoxaparin therapy.[10] The main risk factors for developing SRH are advanced age, impaired renal function, doses of enoxaparin approaching 1 mg/kg, and concomitant administration of drugs that alter hemostasis.[2,10] Although the exact etiopathogenesis of SRH have not been clearly defined, several hypotheses regarding potential predisposing factors have been proposed such as diffuse occult vasculopathy, arteriosclerosis of small retroperitoneal vessels, anticoagulation-induced immune microangiopathy, forceful muscular strain, and unrecognized minor trauma.[1,11] Clinical manifestations of SRH are highly variable and may be vague especially in the early stages, thus resulting in delayed diagnosis.[1] Clinical signs and symptoms vary from abdominal or back pain to catastrophic hypovolemic shock.[1,11] CT scan is the diagnostic imaging modality of choice.[1,9] CT can show active extravasation of the contrast material, an emergency angiography and embolization of the bleeding vessel can be done.[1] SRH require early diagnosis and aggressive multifactorial treatment.[9,10] Conservative management include discontinuation of enoxaparin, administration of protamine, packed red blood cell(PRBC), Fresh frozen plasma(FFP), and volume resuscitation. Serial coagulation and hemoglobin level measurements and correction.[10,11] If a bleeding vessel is located on CT, angiography and embolization of bleeding vessel is indicated. Surgical treatment has limited role. Open surgery sometimes unable to locate bleeding vessel and there is risk of worsening the bleeding due to release of the tamponade effect.[1,11] Abdominal gauze packing may be the only surgical option if no specific arterial but general oozing is present.[1,2] If the patient developed abdominal compartment syndrome due to SRH, a decompression laparostomy may be required.[2] Probable causes of SRH in our patient is underlying complex coagulopathy due to infection, high dose of enoxaparin and impaired renal function.

CONCLUSION

In conclusion, thromboembolic manifestations are not uncommon in COVID-19 patients, most of guidelines recommends either therapeutic or prophylactic anticoagulation. SRH is a severe and potentially fatal complication of enoxaparin therapy. SRH should always be included in the differential diagnosis in patients under enoxaparin treatment presenting with abdominal pain. CT scan is the diagnostic imaging modality of choice. Early diagnosis and aggressive treatment are of paramount importance as SRH is associated with high mortality and morbidity. Anticoagulation either prophylactic or therapeutic is recommended in critically ill COVID-19 patients, but physicians should be cautious while prescribing enoxaparin in COVID-19 patients with impaired renal function, old age and in patients concomitantly receiving antiplatelet agents and watch for this potential complication specially in patients with abdominal complaints, findings or sudden drop in hemoglobin.

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