

CASE REPORT

Life Threatening Retroperitoneal Haemorrhage in COVID-19 Patient -Surgical Treatment: A Case Report

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ABSTRACT

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus that emerged in late 2019. The COVID-19 pandemic has affected millions of people worldwide, causing severe respiratory distress, multi-organ failure, and death. Nevertheless, there are records of unusual presentations of COVID-19, which includes hemorrhagic complications. Retroperitoneal hemorrhage (RPH) is a rare but life-threatening complication that can occur in COVID-19 patients. In this paper, we present a case of a life-threatening spontaneous retroperitoneal haemorrhage who has successfully undergone an exploratory laparotomy and made a full recovery. We would like to highlight the importance of close monitoring and prompt recognition in patients with increased risk of bleeding.

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INTRODUCTION

COVID-19 caused by SARS-CoV-2 virus has been a global threat in the past two years. Patient presents with a wide range of clinical manifestations. The disease affects the respiratory system primarily but can also cause systemic inflammation leading to multiple organ dysfunction. Viral injury to the vascular system leads to vascular dysfunction in Covid 19 patients. Immune dysregulation and endothelial injury contribute to prothrombotic state. Cui S. et al concluded that the incidence of venous thromboembolism in severe novel coronavirus pneumonia was 25% and associated with poor prognosis (1). The high rate of thrombotic events has mandated anticoagulant therapy for inpatient Covid 19 patients. This has led to rare but devastating complications of bleeding among them. Most of the patients responded to conservative treatment but some succumb depending on the extent of bleeding (2,3). Nematihonar et al. shared a case report of two COVID-19 patients with complete recovery following angioembolization of the inferior epigastric artery in spontaneous giant rectus sheath hematoma (4). Here we are presenting a case of spontaneous retroperitoneal haemorrhage who has successfully undergone an exploratory laparotomy and returned home safely.

CASE REPORT

A middle-aged gentleman with underlying Hypertension and End Stage Renal Disease on regular dialysis presented with a history of fever, cough and breathlessness for three days. He was tested positive for COVID-19 and subsequently admitted to the general medical ward for initiation of treatment. During admission, his oxygen saturation was 87% on room air and started on oxygen therapy via face mask 5L/min. As per local protocol, he was started on intravenous Methylprednisolone 2mg/kg/day, antiviral Favipiravir 1800mg bis in die (BD) for one day and then 800 mg BD for five days, renal adjusted dose of Piperacillin tazobactam and subcutaneous Heparin 5000 IU BD.

On day three of admission, the patient further desaturated with PF ratio (Pao₂/FiO₂) of 124. High flow nasal cannula with initial (fraction of inspired oxygen) Fio₂ 0.8 was started. CT pulmonary angiogram (CTPA) performed and revealed left upper lobe subsegmental branch pulmonary embolism with typical Covid-19 lung changes. Anticoagulant was changed to treatment dose of low molecular weight heparin subcutaneous Enoxaparin 60 mg once daily. Meanwhile, patient also receives intermittent renal replacement therapy as per his normal regime.

5th day of admission onwards (day 8 of illness), the patient showed improvements in respiratory function. Methylprednisolone was changed to Dexamethasone

and his oxygen requirement improved. However, there was a sudden drop of Haemoglobin (Hb) from 11.2g/dL to 9.2g/dL. No obvious source of bleeding. Enoxaparin was withheld for a day and restarted the next day when repeated Hb was 10.5g/dL. Patient remains stable throughout.

Two days later, the patient complained of right thigh pain cramping in nature and maximum tenderness elicited at the right sacroiliac joint and right inguinal area. Bilateral lower limbs were coolish. Otherwise, he was haemodynamically stable and saturating well on Venturi mask 40%.

The following day, the first episode of hypotension occurred with blood pressure of 70/40mmHg. Fluid resuscitation commenced with 500mls of Gelofusine and that improved the blood pressure. Patient was never tachycardic. Central venous line was inserted to initiate a low dose of Noradrenaline. Per rectal examination was negative. Abdominal examination revealed fullness and guarding at the right iliac fossa and lumbar region. Multiple bruises present over these areas. Enoxaparin was withheld and 1 pint packed cell transfused. Reviewed by the surgical team and planned for an ultrasound abdomen. Proceeded with dialysis as the patient was due. 5 minutes into dialysis, patient developed a presyncope attack and severe hypotension. Dialysis was abandoned and fluid resuscitation continued. Repeated blood parameters were dropped in Hb by 5g/dL with coagulopathy. 3pint pack cells were transfused. Urgent CT abdomen pelvis showed retroperitoneal haematoma with active bleeding likely from the iliolumbar branch of the right internal iliac artery (Figure 1). Resuscitation



Figure 1: CT abdomen pelvis showing retroperitoneal haematoma. The retroperitoneal haematoma (black arrow) displaced the right polycystic kidney (white arrow) cephalad and caused fullness over the right lumbar region upon examination.

was continued with blood and blood products. As we were in the district hospital, there were no facilities for embolization for this patient. Surgical team opted for conservative treatment as it will not be easy to find a small vessel at retroperitoneum. The decision didn't last long as the patient was hit by another episode of hypotension. Patient was intubated and proceeded with exploratory laparotomy. Large amount of blood clots with gushing of blood as abdominal incision made and a bleeder from the right lumbar artery was identified and secured. Estimated blood loss was 4.5Litres. Abdomen was closed with retro abdominal packing. Patient was ventilated overnight. Anaemia and coagulopathy were corrected. Started on regular doses of tranexamic acid and vitamin K. However, the condition remained ill with double inotropic support. Went in for a second laparotomy on the next day and there were approximately 500mls of blood clot and no sign of active bleeding. General condition improved following second surgery and was able to wean down on inotropes. On postoperative day three, he was extubated and discharged on postoperative day five. Repeated CT abdomen 4 months later, shows complete resolution of haematoma.

DISCUSSION

SARS-CoV-2 infection affects different people in different ways. Although many people infected with Covid-19 have milder symptoms, some may acquire severe complications and lead to morbidity and mortality. Endothelial damage and thromboinflammation, dysregulation of immune responses, and maladaptation of angiotensin converting enzyme 2 (ACE2) related pathways has been postulated to contribute to these extrapulmonary manifestations of COVID-19 (5). Micro and macrovascular thromboses such as deep venous thrombosis and pulmonary embolism have been frequently reported. American Society of Haematology 2021 guideline recommends giving all hospitalized Covid-19 patients prophylactic doses of anticoagulant in the absence of active bleeding risk. In this case report, the patient has evidence of pulmonary embolism as reported from CTPA with clinical evidence of hypoxaemia. Treatment dose of Enoxaparin was started with the intention to treat. Spontaneous bleeding risk generally increased in Covid 19 patients due to vascular angiopathy, high dose steroid and use of anticoagulant. In our patient, bleeding risk doubled due to uraemia and intermittent dialysis which may affect the clot stability. This should have alarmed the team when there was first drop in haemoglobin and subsequent complaint of thigh pain by the patient. At this point, radiographic imaging would have been helpful in detecting retroperitoneal bleed when clinical findings were unremarkable. However, it was not done. Thus, there was a delay in diagnosis. Decision for urgent CT was made when there was significant haemodynamic instability. In view there was no option of embolization, the team has decided for conservative treatment as the patient's haemodynamic

improved following fluid resuscitation. However, the decision needs to be revised within three hours as the patient get unstable again. Prompt decision of surgery, adequate resuscitation with blood and blood products and close monitoring in intensive care settings has all contributed to the success story of this patient.

Early detection of retroperitoneal haemorrhage can be treated with discontinuing anticoagulant and early transfer to tertiary centres for monitoring and embolization if indicated. Complete recovery with no evidence of further expansion was seen after two weeks following embolization in some cases (4). In this patient, there was delay in detection thus leading to life threatening bleeding and surgery. With increased clinician awareness this can be prevented.

CONCLUSION

RPH is a rare but life-threatening complication that can occur in COVID-19 patients. The procoagulant state and endothelial dysfunction caused by COVID-19 infection can contribute to the development of RPH. Early recognition and diagnosis are crucial to improve patient outcomes. Prompt intervention with endovascular embolization is the preferred method for managing RPH, but surgical intervention may be necessary in severe cases. A multidisciplinary approach involving critical care physicians, interventional radiologists, and surgeons is necessary for optimal management of RPH in COVID-19 patients.

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