

Case Report



Simultaneous retroperitoneal haematoma and rectus sheath haematoma in a COVID-19 patient

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Abstract

A 67-year-old woman was admitted to hospital with shortness of breath and acute cough for two days. Computed tomography (CT) results indicated COVID-19 pneumonia. Prophylactic anticoagulant treatment was begun using enoxaparin sodium on service. On the 10th day of her follow-up, increased respiratory distress occurred, and she was taken to the intensive care unit (ICU). Her haemoglobin level decreased to 7.5 g/dL in the intensive care follow-up (16th day). On CT scan, a massive retroperitoneal haematoma, 150 mm in diameter, was detected with a right inferior rectus sheath haematoma, 60 mm in diameter. Anticoagulant therapy was stopped, and eight units of erythrocyte suspension (ES) administered. Kidney and liver failure was added to the clinical picture, and patient died on the 18th day after admission.

Introduction

COVID-19 infection started in Wuhan, China, and spread rapidly in December 2019, to become an epidemic.¹ Since COVID-19 is a most recently discovered disease and its epidemiological and clinical aspects are not fully known, many studies have been conducted. As a result of the data obtained, it has been shown that COVID-19 infection triggers arterial and venous thrombotic events.² Therefore, anticoagulation therapy such as enoxaparin is recommended and is routinely used to prevent further thrombus formation. However, the widespread use of anticoagulant treatment increases the potential for bleeding.³ So, finding the balance between bleeding and thrombus seems necessary.

Rectus sheath haematoma accounts for 2% of unexplained abdominal pain. It is one of the causes of acute abdominal pain that develops due to rupture of the rectus muscle or epigastric vessels.⁴ Retroperitoneal haematoma often occurs due to bleeding into the retroperitoneal area.⁵ Anticoagulant therapy is the most important predisposing factor in developing both haematomas. They can also occur due to various reasons such as haematological diseases, trauma, drug injection, physical exercise, coughing, sneezing, pregnancy and hypertension.⁶ Haematomas cause abdominal pain, abdominal mass, ecchymoses on the abdominal wall, decrease in haemoglobin values, nausea, vomiting, peritoneal irritation, and fever. Ultrasonography (USG) and computed tomography (CT) are used for diagnosis. Because of its easy and quick accessibility, USG is the first

choice in diagnosis. On the other hand, fast performance, and the ability to provide information about the location of the haematoma makes CT show more meaningful results.⁷ Surgical or conservative methods are used in the treatment. At experienced centres, the selective embolization of the epigastric arteries is an alternative treatment.

This case report presents the diagnosis and treatment process of a simultaneous retroperitoneal haematoma and rectus sheath haematoma case developed in a COVID-19 patient.

Case Report

A 67-year-old woman was admitted to the emergency department for two days with an acute cough and shortness of breath. She had hypertension and diabetes and had no history of anticoagulant use or surgery. On evaluation, the vital signs of the patient were as follows: blood pressure: 94/52 mm Hg; pulse rate: 113 beats per minute; oxygen saturation: 84% (in room air); body temperature: 37.2°C. The patient's weight was 98 kg, and her height was 156 mm (body mass index [BMI] of the patient = 40.26 kg/m²).

There was no laboratory pathology except a high C-reactive protein (CRP) test level (65 mg/L) and high D-dimer level (2458 ng/mL). CT findings were consistent with COVID-19 pneumonia (Figure 1A). The patient was hospitalised for follow-up with moxifloxacin 400-mg tablets (one tablet per day) and piperacillin-tazobactam 4.5 g intravenous (four vials per day), and favipiravir 200-

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Figure 1. CT images of simultaneous retroperitoneal haematoma and rectus sheath haematoma occurring in a COVID-19 patient. (A) An arrow shows a 67-year-old woman with COVID-19 pneumonia (pneumonitis areas). (B) Right rectus sheath haematoma, 60 mm in diameter, at infra-umbilical level (shown by arrow). (C) Giant right retroperitoneal haematoma, 150 mm in diameter at the transverse section on CT scan (shown by arrow). (D) Simultaneously rectus sheath and retroperitoneal haematoma on CT scan at sagittal section (shown by arrows-anterior arrow shows rectus sheath haematoma, and the posterior indicator shows retroperitoneal haematoma).

mg tablets (four tablets per day). In addition, prophylactic enoxaparin sodium (40 mg/0.4 mL subcutaneously every 12 hours) was started according to BMI.

On the 10th day after admission, the patient was taken to the intensive care unit (ICU) due to increased respiratory distress. During the intensive care follow-up (16th day), her haemoglobin level decreased to 7.5 g/dL. On abdominal and pelvic CT scan, a massive lesion with a hyperdense wall of approximately 150 mm in diameter, starting from the lower pole of the right kidney and filling the right retroperitoneum with right inferior rectus sheath haematoma, 60 mm in diameter, was detected (Figure 1B, 1C and 1D).

We began the vital signs monitoring and fluid replacement for the patient. Anticoagulation therapy was stopped. Since the haemoglobin value of the patient fell below 7 g/dL twice, eight units of erythrocyte suspension (ES) were administered to the patient. An abdominal physical examination was performed daily. Kidney and liver failure was added to the clinical picture during the hospital stay. Surgery was not planned for the patient because of the diffuse pneumonia clinical picture in both lungs. Despite the interventions, the patient died on the 18th day after admission.

Discussion

Rectus sheath haematoma occurs due to bleeding into the sheath surrounding the rectus abdominis and pyramidalis muscles due to rupture of epigastric arteries or veins.⁸ On the other hand, retroperitoneal haematomas can generally occur because of trauma, aneurysmal rupture of intra-abdominal vascular structures, atherosclerosis, bleeding

from primary or secondary tumours, anticoagulant use, haemophilia, ulcerative bleeding of the duodenum and colon, pancreatitis, and iatrogenic secondary to vascular interventions.⁵ Both types of haematomas are infrequent, and the absence of two haematomas makes our case more interesting. This case report aims to present this rare condition's diagnosis and treatment process and bring it to the medical literature.

In guidelines, starting low molecular weight heparin for prophylaxis is recommended for patients with high BMI (over 40 kg/m²),⁹ and anticoagulant drugs are recommended for patients who are followed up in ICU.^{10,11} Despite the advantages of anticoagulants, patients receiving these therapeutics need close monitoring because of the risk of haemorrhagic events. This case report is an example of a medical condition in which bleeding occurs due to anticoagulant therapy following life-threatening problems. To diagnose such kind of condition, an abdominal physical examination is the first step. USG and CT are used for diagnosis as the second step. It has been reported that the probability of clinical misdiagnosis is over 50%, and even 30% of the diagnosis of haematomas can be missed with USG. CT, on the other hand, is a superior imaging method for evaluating the location, extent, and size of the haematoma and is recommended by some authors in the first place for abdominal problems with no definite diagnosis.⁶ Contrast extravasation or haematoma area can be seen on a CT scan.

Treatment of haematomas can be conservative or surgical, depending on the haematoma size and the patient status. In the case of mild haematomas, followed by anticoagulant therapy, we recommend immediately discontinuing anticoagulant treatment. Closely monitoring of vital signs and daily abdominal examination are essential steps of follow-up. In addition, frequent haemoglobin level checks is needed. The minimum haemoglobin values of the patients should be kept at seven g/dL, and necessary replacements should be made to achieve this value. In addition, correction of coagulation disorders should be made with vitamin K, fresh frozen plasma, and protamine sulphate.¹¹

In the case of patients with persistent bleeding, hemodynamically unstable despite blood transfusion, and those with compression symptoms and abdominal compartment surgery could be considered.¹² At experienced centres, the selective embolisation of the epigastric arteries is an alternative treatment. In addition, USG-guided haematoma drainage should always be considered in haematoma patients, as serious complications such as renal failure due to intra-abdominal compartment syndrome and small bowel ischemia may occur due to advanced haematomas.¹³ Despite all precautions, the patient died due to multi-organ failure after a massive haemorrhage. Although it is desired to prevent thrombotic events with enoxaparin,

massive bleeding can be a life-threatening condition. The balance between coagulation and anticoagulation must be carefully struck. The diagnosis of a retroperitoneal haematoma should be kept in mind in patients with rapid haemoglobin depletion and receiving anticoagulant therapy due to COVID-19 infection.

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Ethical Approval

The study was conducted by the ethical standards outlined in the 1964 Helsinki Declaration and its subsequent amendments.

Conflict of Interest

The author declares no conflict of interest in this case report.

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