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Case Series

Acute retroperitoneal hematoma following severe Covid-19 and the use of anticoagulants

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ABSTRACT

Introduction: and Importance: Severe COVID19 patients under anticoagulant therapy are at the risk of developing hematoma.
Case presentation: We present case of 11 COVID19 who were presented with localized skin ecchymosis lesions in different areas of the body and retroperitoneal hematoma in the posterior wall of the abdomen and chest.
Clinical discussion: Cases of hematoma with severe COVID19 patients under anticoagulant therapy are reported in several case studies, particularly in geriatric population with the previous history of blood and/or cardiac disorders.
Conclusion: These patients should be carefully monitored for hematomas by skilled nurse and practitioner and timely treated and monitored. -

1. Introduction

Global upsurge in COVID19 cases has been marked with systemic manifestations. Clinical studies have indicated thromboembolic events and vascular injuries in COVID19 patients [1,2]. In such cases, morbidities, poor prognosis and even mortality is reported. Monitoring thrombotic event through coagulation blood testing such as that of D-dimers and fibrinogen is indicated in such patients to reduce the risk of fatality [3,4]. Cytokine storm and elevation in the production of inflammatory cytokines in the known pathophysiological mechanism behind coagulopathy in COVID19 patients. These patients were under anticoagulants (blood thinners) to reduce ischemic risks [5–7].

Intake of anticoagulants is known for increased risk of hematoma [8,9]. A few case studies have reported similar in severe COVID19 patients [10]. In this case series, we present COVID19 patients who were treated with anticoagulants and were seen to be presented with retroperitoneal hematoma.

2. Case presentation

The study included patients on anticoagulant therapy and severe COVID19 and susception of hematoma was made, based on the clinical symptoms. Contrast CT or MRI scan was performed to confirm the diagnosis. Biochemical parameters were also analyzed in these patients. Patients reported from June 2020–June 2021 were included in the study. These patients were admitted for more than 5 days in our intensive care unit and had history of cardiac and blood disorders.

Fresh froze plasma and blood transfusion was performed and emergency consultancy with hematologist was made.

Retroperitoneal hematoma, the most common cause of which in 60% of cases is due to pelvic fracture, and in sharp and blunt abdominal trauma and bleeding above 200 cc in the massive cavity leads to diffuse and sometimes localized abdominal pain (60%), Diffuse and localized lumbar pain (25%), generalized tenderness (2/3) and the occurrence of diffuse and localized shock (40%). It is characterized with generalized tenderness, painful mas in abdominal and flank regions and paralytic ileus in 8% cases and hematoma in 80% (Table 1).

In 11 patients with COVID19, we observed ecchymosis and hematoma in different parts of the chest, back of the arms, pelvis and abdomen (case 2,4,6). In 2 patients, retroperitoneal hematoma resulted in death due to severe bleeding (case10,11). Hematomas were diagnosed in patients based on CT scan and MRI findings. These patients were receiving anticoagulant therapy with low molecular-weight heparin, enoxaparin 6000 U twice.

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Patients were given packed blood cells for the treatment of hematoma (mean: 3 packs).

Unique identifying number is: researchregistry7727.

This case series has been presented in accordance with PROCESS guidelines [11].

3. Discussion

COVID19 is a multifunction disease where hematological disorders are reported. Coagulopathy is seen in these patients, indicated by thromboembolic events. These abnormalities are associated with poor prognosis and increased mortality rate. Alterations in activated partial thromboplastin time, International Normalized Ratio of the prothrombin time along with increase in D-dimer and fibrin degradation products and prothrombin time. DIC is also seen to be correlated with deaths [12–14]. Increased levels of inflammatory markers like C-reactive protein and IL-8 in COVID19 patients, is similar to that in vasculitis [15].

Severe COVID19 patients with ischemia of lower and upper limbs and a significant number of deep venous thrombosis have been reported who were under anticoagulant therapy before COVID19 [16]. A significant number of cases studies have reported muscle hematoma in COVID19 patients, receiving anticoagulants [17,18]. Mortality rate in these conditions have been reported as 32.4% [19]. Scialpi, Russo [20] reported first case of retroperitoneal hematoma in a COVID19 patient that indicated significance of the use of contrast CT scan for the detection. Since then, a few case studies are reported in this context. Patients on anticoagulant therapy and other comorbidities are at the greater risk of hematoma and/or ecchymosis and fatality [21,22]. In a recent case report, Nakamura, Ouchi [23] presented a case of iliopsoas hematoma in two patients who were under anticoagulant therapy due to severe COVID19. The study showed that retroperitoneal hematoma is such patients are underreported and might not be suspected easily. Other factors contributing to retroperitoneal hematoma in COVID19 patients are atherosclerosis and small trauma to blood vessels due to persistent cough. Furthermore, coronavirus can also bind to angiotensin-converting enzyme 2 receptors on endothelial cells of the blood vessel and cause damage [23]. Ottewill, Mulpeter [24] also reported the case 3 patients under anticoagulant therapy after COVID19, who were presented with spontaneous hematoma.

The occurrence of coagulopathy is critical and immediate consultation is required. Bleeding in the upper airway system requires hospitalization in the ICU and ENT consultation and anterior or posterior tampons are used to control bleeding.

In COVID19 patients with coagulopathy and bleeding, a skilled nurse is required for each ICU bed at night. Occurrence of ecchymosis on the skin and trunk requires measurement of fibrinogen coagulation factors, calcium, serial control of hemoglobin and blood culture for sepsis and DIC (disseminated intravascular coagulation).

Occurrence of ocular bleeding and sclera involvement, especially in patients who have positive PCR sampling of eye secretions, that cause vasculitis, requires orbital CT scan and ocular consultation.

Patients with positive PCR and the presence of active retroperitoneal hematoma, seen by expansion of abdomen in CT scan, administration of anticoagulants with hematologist consultation is required and 4 units blood transfusion in the patients can be helpful.

Increased INR and bleeding and ecchymosis in Corona patients require discontinuation of anticoagulants and, if necessary, FFP, essential and tri amino injections (except hematology) are needed.

Timely diagnosis and management of hematoma is important to avoid fatality. COVID19 patients, who are given anticoagulants, should be closely examined for the presentation of hematoma. Alterations in biochemical parameters should also be monitored closely.

Ethical approval and consent to participate

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Consent to participate

From the under 16 years old was given by a parent or legal guardian.

Funding source

No funding was secured for this study.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Contributors' statement page

Dr. Saeid Marzban-Rad: conceptualized and designed the study, drafted the initial manuscript, and reviewed and revised the manuscript.

Dr. Sahar Bahmani and Dr. Dr.Amenehsadat Kazemi: Designed the data collection instruments, collected data, carried out the initial analyses, and reviewed and revised the manuscript.

Dr. Hamid Reza Taheri: Coordinated and supervised data collection, and critically reviewed the manuscript for important intellectual content.

Availability of data and material

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Consent for publication

Written informed consent was obtained from the patient for

Table 1
Patient characteristics and laboratories factors investigated in this study.

Case Number	Gender	Age	History	Hb	PCR	CT Scan	D.M	INR	Deceased
1	Female	79	Atrial fibrillation	11.9	+	+	+	1.6	+
2	Female	55	Deep vein thrombosis	11.9	+	+	+	1.6	+
3	Male	86	Atrial fibrillation	7.1	+	+	+	1.5	+
4	Female	87	Atrial fibrillation	8.1	–	–		2	+
5	Female	77	Deep vein thrombosis	7.5	+	+	+	2	+
6	Male	75	Ischemic heart disease	12.5	–	+	+	2.2	–
7	Female	83	Atrial fibrillation	6.8	–	+	+	4.4	+
8	Female	61	Myocardial infarction	7.5	+	+	+	1.3	+
9	Female	68	Ischemic heart disease	–	+	+	+		+
10	Male	54	Myocardial infarction	7.8	+	+	+	1.1	–
11	Female	57	Pulmonary embolism	6.6	+	+	+		+

publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Research registration

N/A.

Guarantor

Saeid Marzban-Rad.

Registration of research studies

Elsevier does not support or endorse any registry.

1. Name of the registry:7727.
2. Unique identifying number or registration ID:
3. Hyperlink to your specific registration (must be publicly accessible and will be checked).

Declaration of competing interest

The authors deny any conflict of interest in any terms or by any means during the study.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amsu.2022.103909.

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