



Case Series

Acute Progressive retro-peritoneal hematoma in COVID19 patients with subcutaneous ecchymosis

Ebrahim Khalighi^a, Saeid Marzban-Rad^{b,**}, Hamid Reza Taheri^{c,*}^a Department of Anesthesiology, School of Allied Medical Sciences, Shahid Mostafa Khomaeini Hospital, Ilam University of Medical sciences, Ilam, Iran^b Department of Surgery, Imam-Reza Hospital, Aja University of Medical Sciences, Tehran, Iran^c Department of Surgery, School of Medicine, Shahed University, Tehran, Iran

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ABSTRACT

Introduction: and importance: COVID19 is a multifunction disease where hematological disorders are reported. Coagulopathy is seen in these patients, indicated by thromboembolic events.

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: Increased INR and bleeding and ecchymosis in Corona patients require discontinuation of anticoagulants and, FFP, essential and tri amino injections are needed.

Conclusions: Diagnosis and management of hematoma is important to avoid fatality.

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]. 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 [2,3]. Cytokine storm and elevation in the production of inflammatory cytokines in the known pathophysiological mechanism behind coagulopathy in COVID19 patients [4,5]. These patients were under anticoagulants (blood thinners) to reduce ischemic risks [6–8].

Intake of anticoagulants is known for increased risk of hematoma [9–11]. A few case studies have reported similar in severe COVID19 patients. In this case series, we present COVID19 patients who were treated with anticoagulants and were seen to be presented with retroperitoneal hematoma.

2. Methods

Patients on anticoagulant therapy and severe COVID19, susception of hematoma was made, based on the clinical symptoms such as loss of movement of the limbs along with swelling and tenderness of abdomen

and peritoneum. Contrast CT or MRI scan was performed to confirm the diagnosis. Biochemical parameters were also analyzed in these patients.

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

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The methods are stated in accordance with PROCESS 2020 guidelines [12].

3. Results

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

* Corresponding author.

** Corresponding author.

E-mail addresses: md.saeidmarzbanrad@gmail.com (S. Marzban-Rad), md.hr.taheri@gmail.com (H.R. Taheri).<https://doi.org/10.1016/j.amsu.2022.104107>

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

Number	Gender	Age	TSH/T4	Hb	PCR	CT	D.M	INR	Expire
1	Female	79	0.22/0.9	11.9	+	+	+	1.6	+
2	Female	55		11.9	+	+	+	1.6	+
3	Male	86		7.1	+	+	+	1.5	+
4	Female	87		8.1	-	-		2	+
5	Female	77		7.5	+	+	+	2	+
6	Male	75		12.5	-	+	+	2.2	-
7	Female	83		6.8	-	+	+	4.4	+
8	Female	61	0.02/0.18	7.5	+	+	+	1.3	+
9	Female	68		-	+	+	+		+
10	Male	45		7.8	+	+	+	1.1	-
11	Female	57		6.6	+	+	+		+

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 (Table 1).

4. 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 [13–15]. Increased levels of inflammatory markers like C-reactive protein and IL-8 in COVID19 patients, is similar to that in vasculitis [16].

Scialpi, Russo [17] 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 [18, 19]. In a recent case report, Nakamura, Ouchi [20] 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 [20]. Ottewill, Mulpeter [21] also reported the case 3 patients under anticoagulant therapy after COVID19, who were presented with spontaneous hematoma.

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.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Ethical approval

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.

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No funding was secured for this study.

Author contribution

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

Registration of Research Studies

1. Name of the registry: N/A
2. Unique Identifying number or registration ID: N/A
3. Hyperlink to the registration (must be publicly accessible): N/A

Guarantor

Saeid Marzban-Rad.

Consent

Not applicable.

Declaration of competing interest

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

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2022.104107>.

References

- [1] T. Kalayci, Rectus sheath hematoma due to low molecular weight heparin in a COVID-19 patient in Turkey, *Cureus* 13 (5) (2021) e14870-e14870.
- [2] Z. Aghsaeifard, R. Alizadeh, *The Role of angiotensin-converting Enzyme in immunity: shedding Light on experimental findings*. Endocrine, metabolic & immune disorders - drug targets (formerly current drug targets - immune, Endocrine & Metabol. Disord. 22 (1) (2022) 6–14.
- [3] R. Alizadeh, Z. Aghsaeifard, Does COVID19 activates previous chronic pain? A case series, *Ann. Med. Surg. (Lond)* 61 (2021) 169–171.
- [4] R. Vaziri-Harami, P. Delkash, Can l-carnitine reduce post-COVID-19 fatigue? *Ann Med Surg (Lond)* 73 (2022), 103145.
- [5] R. Alizadeh, et al., Pregnancy with diaphragmatic and stomach rupture: lessons from a case report, *Clin. Case Rep.* 8 (7) (2020) 1206–1208.
- [6] I. Patel, et al., Life-threatening psoas hematoma due to retroperitoneal hemorrhage in a COVID-19 patient on enoxaparin treated with arterial embolization: a case report, *J. Clin. Med. Res.* 12 (7) (2020) 458–461.

- [7] A. Kollias, et al., Thromboembolic risk and anticoagulant therapy in COVID-19 patients: emerging evidence and call for action, *Br. J. Haematol.* 189 (5) (2020) 846–847.
- [8] V. Carfora, et al., Anticoagulant treatment in COVID-19: a narrative review, *J. Thromb. Thrombolysis* 51 (3) (2021) 642–648.
- [9] V. Essebag, et al., Effect of direct oral anticoagulants, warfarin, and antiplatelet agents on risk of device pocket hematoma: combined analysis of BRUISE CONTROL 1 and 2, *Circulation: Arrhythmia Electrophysiol.* 12 (10) (2019), e007545.
- [10] S.-Y. Won, et al., Acute subdural hematoma in patients on oral anticoagulant therapy: management and outcome, *Neurosurg. Focus* 43 (5) (2017) E12.
- [11] M. Ahmadinejad, et al., Using new technique in sigmoid volvulus surgery in patients affected by COVID19, *Ann. med. surg.* 2012 70 (2021), 102789–102789.
- [12] R.A. Agha, et al., The PROCESS 2020 guideline: updating consensus preferred reporting of CasE Series in surgery (PROCESS) guidelines, *Int. J. Surg.* 84 (2020) 231–235.
- [13] F. Zhou, et al., Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study, *Lancet* 395 (10229) (2020) 1054–1062.
- [14] W.-j. Guan, et al., Clinical characteristics of coronavirus disease 2019 in China, *N. Engl. J. Med.* 382 (18) (2020) 1708–1720.
- [15] N. Tang, et al., Abnormal coagulation parameters are associated with poor prognosis in patients with novel coronavirus pneumonia, *J. Thromb. Haemostasis* 18 (4) (2020) 844–847.
- [16] W. Zhang, et al., The use of anti-inflammatory drugs in the treatment of people with severe coronavirus disease 2019 (COVID-19): the Perspectives of clinical immunologists from China, *Clin. Immunol.* 214 (2020), 108393.
- [17] M. Scialpi, et al., First case of retroperitoneal hematoma in COVID-19, *Turkish J. Urol.* 46 (5) (2020) 407.
- [18] M. Teta, M.J. Drabkin, Fatal retroperitoneal hematoma associated with Covid-19 prophylactic anticoagulation protocol, *Radiol. Case Rep.* 16 (7) (2021) 1618–1621.
- [19] R. Jareño-Collado, et al., Ecchymosis and/or hematoma formation after prophylactic administration of subcutaneous enoxaparin in the abdomen or arm of the critically ill patient, *Enfermería Intensiva* 29 (1) (2018) 4–13.
- [20] H. Nakamura, et al., Case report: iliopsoas hematoma during the clinical course of severe COVID-19 in two male patients, *Am. J. Trop. Med. Hyg.* 104 (3) (2021) 1018–1021.
- [21] C. Ottewill, et al., Therapeutic anti-coagulation in COVID-19 and the potential enhanced risk of retroperitoneal haematoma, *QJM: Monthly J. Assoc. Phys.* (2021) hcab059.