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Acquired hemophilia in a patient with SARS-CoV-2 infection; a case report

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ABSTRACT

Acquired hemophilia (AH) is a potentially life-threatening hemorrhagic disorder. We report the second confirmed case of COVID-19-associated AH in a 45-year-old female which, unfortunately, expired as her treatment failed. She presented to the emergency department with abnormal bleeding and spontaneous hemoptysis about ten days after a removal surgery of her epiglottis tumor. Aggregation tests, such as partial thromboplastin time (PTT), are recommended in patients with COVID-19 infection that have bleeding episodes.

Case Report

Implication for health policy/practice/research/medical education:
Acquired hemophilia is a potentially life-threatening hemorrhagic disorder. There have been various reports of COVID-19-associated acquired hemophilia. Aggregation tests, such as partial thromboplastin time (PTT), are recommended in patients with COVID-19 infection that have bleeding episodes.

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Introduction

Acquired hemophilia (AH) is a potentially life-threatening hemorrhagic disorder that is caused by autoantibodies against the clotting factors (1-5). Older individuals with no signs of predisposing factors like autoimmunity and other previous personal or family history of bleeding are a notable population of patients with AH. However, cancer (6-8) and infection (9) influence the development of AH. The presentations of AH include hemorrhages in the skin, muscles, soft tissues, and mucous membranes (such as epistaxis, gastrointestinal and urological bleedings, and retroperitoneal hematomas) (10).

In this study, we present a 45-year-old woman with no history of abnormal bleeding that presented to the emergency department with spontaneous hemoptysis ten days after a removal surgery of her epiglottis tumor.

Case Presentation

In May 2020, a 45-year-old female presented to our emergency department with spontaneous hemoptysis. On admission, she complained of odynophagia and hemoptysis which had started two hours before admission. She had a removal surgery of her epiglottis tumor ten days before her admission. She denied any history of trauma, cough, or fever. On admission, she was conscious and her vital signs were stable. On physical examination, bleeding from her throat was noticed. A summary of the patient's laboratory tests is shown in Table 1.

Due to the high level of partial thromboplastin time (PTT), the patient was treated with factor VIII before the mixing test's result. However, she did not respond significantly to the treatment. Based on the mixing test's result, the diagnosis of AH was confirmed. Therefore, she was treated with factor VII which finally resulted in a decline in the level of PTT.

On day two of admission, she experienced repetitive convulsions. Brain computed tomography (CT) scan showed diffuse brain parenchymal hypodensity suggestive

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of brain edema. Depakene (valproic acid) was initiated after neurology consultation. Later, on the same day, the patient was intubated due to respiratory distress but she developed a cardiopulmonary arrest during the intubation process. Cardiopulmonary resuscitation (CPR) was initiated for two minutes and was successful. In addition, she also developed vaginal bleeding and coffee-ground vomiting. Consequently, she received pack cells because of her low hemoglobin level.

On day three of admission, she developed hypotension with respiratory involvement. Therefore, a possible diagnosis of sepsis was established. Treatment with meropenem and linezolid was initiated. Her chest CT scan revealed focal ground-glass opacity in the medial segment of the right middle lobe of the right lung, which indicated COVID-19 infection or aspiration pneumonia. The reverse transcription-polymerase chain reaction (RT-PCR) for COVID-19 was positive.

An electroencephalogram was recommended because of her fixed mydriasis to confirm clinical brain death. However, it was canceled due to the patient's critical condition. Finally, on day 10 of hospitalization, she experienced another cardiopulmonary arrest and expired after 45 minutes of CPR.

Franchini et al reported the first case of AH diagnosed in a 66-year-old male with COVID-19 infection. The patient had a history of AH nine years before his admission which was treated. It seems that, COVID-19 infection triggered AH in this patient. He was successfully treated with factor VII administration (11). In this study, we report another confirmed case of COVID-19-associated AH. However, our case had no history of hemophilia. Treatment with factors VII and VIII failed and our patient expired.

Conclusion

AH is a potentially life-threatening hemorrhagic disorder. We report the second confirmed case of COVID-19-associated AH in a 45-year-old female which, unfortunately, expired as her treatment failed. Therefore, in patients that are admitted due to COVID-19 infection, performing aggregation tests, such as PTT, are recommended, especially in those that have bleeding episodes.

Authors' contribution

AA diagnosed and managed the patient. HA and SA followed up with the patient. HA and SA, conducted the primary draft. SH conducted the secondary edit. All authors participated in preparing the final draft of the manuscript, revised the manuscript, and critically evaluated the intellectual contents. All authors have read and approved the content of the manuscript and confirmed the accuracy or integrity of any part of the work

Conflicts of interest

The authors declare that they have no competing interests.

Table 1. The results of the patient's laboratory tests

Laboratory parameter	Laboratory result
PTT	76 s
International normalized ratio	1.2 ratio
Hemoglobin	6.6 g/dL
MCV	79 fl
Platelet	303 000/ µL
Total iron-binding capacity	25%
Ferritin	42 ng/L
Fibrinogen	262 g/L
Antinuclear Antibody	10 U/mL
Anti-double stranded DNA	15 IU/mL
Peripheral blood smear	Normochromic and anisocytosis
Mixing test	35.6 (High)
Factor eight activity	76% (Normal)
RT-PCR for COVID-19	Positive

RT-PCR, reverse transcription-polymerase chain reaction; MCV, Mean corpuscular volume; PTT, Partial thromboplastin time.

Ethical issues

This manuscript was conducted following the World Medical Association Declaration of Helsinki. Written informed consent was taken from the patients for its publication. Additionally, ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

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