Case Report

Spontaneous giant chest wall hematomas in COVID-19 patients: case report

Álvaro Fuentes-Martín^, Ángel Cilleruelo Ramos, José Soro-García, José María Matilla González

Hospital Clínico Universitario de Valladolid, Av. Ramón y Cajal, Valladolid, Spain

Correspondence to: Álvaro Fuentes-Martín, Hospital Clínico Universitario de Valladolid, Av. Ramón y Cajal, 3, 47003 Valladolid, Spain. Email: alvarofuentesmartin@gmail.com.

Background: Spontaneous chest wall hematomas are an extremely rare clinical finding. Bleeding manifestations without other associated factors have not yet been re-ported in COVID-19 disease.

Case Description: We report the cases of two patients with severe COVID-19 disease who debuted with a giant spontaneous chest wall hematoma at our institution without a history of traumatic event or previous invasive procedure. Both patients, a 75-year-old male and a 96-year-old woman, were in a resolution stage of their COVID-19 bilateral pneumonia and were receiving prophylactic dose low-molecular-weight heparin. The initial symptoms in both patients were the appearance of chest pain with a rapidly progressive indurated mass in the pectoral region. The imaging test of choice were computed chest tomography and an angiographic study, which allowed the identification of the possible origin of the bleeding and its subsequent selective embolization. Surgical drainage of the hematoma was necessary in one of the patients. Both patients presented a good clinical evolution, being able to be discharged from the hospital approximately one week after admission, with hematoma in the resolution phase and without clinical, laboratory or radiological data of active bleeding.

Conclusions: We consider it necessary to individualize antithrombotic prophylaxis in COVID-19 disease until the risk-benefit ratio is delimited.

Keywords: COVID-19; chest wall hematoma; case report

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Introduction

Spontaneous chest wall hematomas are an extremely rare clinical finding with an anecdotical frequency in patients under antithrombotic prophylaxis or anticoagulant treatment (1). We report the cases of two patients with COVID-19, who after the progressive resolution of the respiratory pathology presented with spontaneous giant chest wall hematomas. We present the following article in accordance with the CARE reporting checklist (available at https://shc.amegroups.com/article/view/10.21037/shc-21-29/rc).

Case presentation

Patient 1

A 75-year-old male, independent in all activities of daily living, with no past medical history, who was admitted for COVID-19 bilateral pneumonia in resolution stage after treatment with Lopinavir/Ritonavir, Hydroxychloroquine, Azithromycin, Betaferon and prophylactic dose Low-molecular-weight Heparin (LMWH) (Enoxaparin 4,000 IU every 24 hours); debuts on his twelfth day of hospitalization with sudden chest pain in the left hemithorax and due

^ ORCID: 0000-0001-7041-4960.

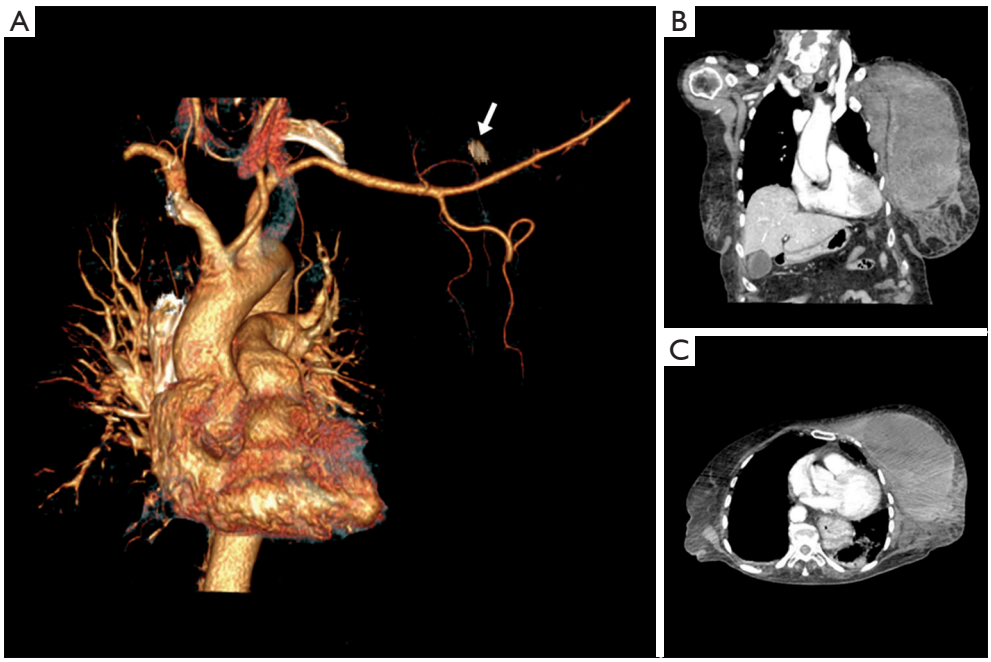

Figure 1 Radiological imaging studies. (A) Patient 1. Angiography study with active bleeding at the level of the collateral branch of the left subclavian artery (arrow). (B,C) Patient 2. Thoracic computed tomography with 18 cm × 16 cm × 9 cm left retropectoral hematoma.

to clinical suspicion of pulmonary emboli (PE) and the difficulty associated to early moving the patient to the CT scanner due to constraints of the radiology department, treatment with anticoagulant dose LMWH (Enoxaparin 8,000 IU every 24 hours) was started. Several hours after starting treatment, when patient's clinical condition allowed it, a computed tomography angiogram (CTA) was performed, ruling out PE and visualizing a left retropectoral hematoma without any active bleeding. Initially, a conservative treatment was decided with LMWH withdrawal and clinical surveillance. After 24 hours, an important increase in hematoma size was observed, associated with a significant anemization and without evidence of abnormal coagulation parameters (prothrombin time, partial thromboplastin time and platelet counts) excluding increased D-dimer (3,631 ng/mL) and fibrinogen (605 mg/dL).

A new CTA was performed showing an increasing hematoma of 14 cm × 13 cm × 7 cm centimeters, with active bleeding at the level of the collateral branches of the subclavian-axillary artery (*Figure 1A*), which were consequently selectively embolized. The patient had a favorable clinical and radiological evolution and could be discharged after 7 days.

Patient 2

A 96-year-old woman, independent in all activities of daily living, with a medical history of arterial hypertension, chronic kidney disease and paroxysmal atrial fibrillation undergoing chronic anticoagulant therapy with direct factor Xa inhibitors (Edoxaban 30 mg), who 18 hours after being discharged from hospital after good evolution of a bilateral COVID-19 pneumonia, treated with Lopinavir/Ritonavir, hydroxychloroquine, Azithromycin and prophylactic doses LMWH (Enoxaparin 4,000 IU every 24 hours), begins with left-sided chest pain with a rapidly progressive indurated mass at the left pectoral region. The blood analysis showed a significant decrease in haemoglobin level without evidence of abnormal coagulation parameters (fibrinogen degradation products, D-dimer, prothrombin time, partial thromboplastin time and platelet counts).

A computed chest tomography (CT) with intravenous contrast was performed showing a left retropectoral hematoma of 18 cm × 16 cm × 9 cm, with active bleeding, but without clearly identification of the vascular structure on which it depended (*Figure 1B,1C*). Due to the radiologic CT findings, initially, an angiographic study of the left

chest wall was performed, without clearly bleeding identification and performing a prophylactic embolization of the thoracodorsal artery and the pectoral branch of the thoracoacromial artery. In a second time, after evaluation of the hemodynamic state, surgical drainage of the hematoma was performed. The patient presented a good clinical evolution, being possible to be discharged from hospital 10 days after admission, with hematoma in the resolution phase and without clinical, analytical or radiological data of active bleeding.

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from patients or their families for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

Discussion

The presence of coagulopathy has recently been described in numerous studies as a complication of severe COVID-19 disease, with the presence of disseminated intravascular coagulation being identified as one of the possible clinical manifestations of this pathology (2-5). Prolonged bed rest, advanced age, and associated comorbidity in these patients represent an added increase in venous thromboembolic risk. At the same time, patients with elevated D-dimer levels, fibrinogen, prothrombin time, and activated partial thromboplastin time have been associated with a worse prognosis (6,7).

In line with the previous findings, postmortem pulmonary histopathological analysis of COVID-19 patients (8,9), after the identification of platelet-fibrin microthrombi in small peripheral vessels at the pulmonary level (diameter <1 mm), has supported the hypothesis that COVID-19 disease is closely associated to the presence of coagulopathies and thrombotic complications.

Different institutions and expert groups have recently recommended the active role of antithrombotic prophylaxis for the management of patients with severe COVID-19 disease (10,11). Some studies suggest, despite its limitations, that anticoagulation, mainly with LMWH, would only benefit patients who meet criteria for sepsis-induced coagulopathy (SIC) or those patients with marked elevation of D-dimer (12).

Despite the multifactorial nature contributing to the appearance of complications in patients on anticoagulant therapy and bleeding manifestations without other associated factors have not yet been reported in COVID-19 disease (13), we report this peculiar hemorrhagic presentation of two patients with severe COVID-19 disease who debuted with a giant spontaneous chest wall hematoma at our institution.

We consider the individualization of antithrombotic prophylaxis regimens and anticoagulant therapies in patients affected with COVID-19 to be necessary, at least, until the publication of the results of prospective studies that allow us to delimit the risk-benefit ratio of this therapeutic intervention.

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Footnote

Reporting Checklist: The authors have completed the CARE reporting checklist. Available at https://shc.amegroups.com/article/view/10.21037/shc-21-29/rc

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at https://shc.amegroups.com/article/view/10.21037/shc-21-29/coif). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from patients or their families for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

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