

# A man with pain and bluish discoloration of left arm

Amilkar Almanza-Hurtado<sup>1</sup> | Tomás Rodríguez-Yanez<sup>1</sup> |  
 María Cristina Martínez-Ávila<sup>2</sup>  | María Carolina Paternina-Mendoza<sup>3</sup> |  
 Jorge Luis Martínez-Monterrosa<sup>4</sup>

<sup>1</sup> Intensive Care Unit, Gestión Salud IPS, Universidad de Cartagena, Cartagena, Colombia

<sup>2</sup> Department of Hematology and Oncology, Cartagena, Colombia

<sup>3</sup> Division of Interventional Cardiology, Clínica Nuestra, Cartagena, Colombia

<sup>4</sup> Department of Vascular Surgery and Angiology, Clínica Nuestra, Cartagena, Colombia

## Correspondence

María Cristina Martínez-Ávila, Department of Hematology and Oncology, Cartagena, Colombia.

Email: [crystina.martinezavila@gmail.com](mailto:crystina.martinezavila@gmail.com)

## 1 | PATIENT PRESENTATION

A previously healthy 27-year-old male patient presented with bluish discoloration of left arm along with pain and swelling over 2 months, increasing on consultation. Coronavirus disease 2019 (COVID-19) was diagnosed by nasopharyngeal swab 3 months previous. On examination, the patient's left arm was cold, swollen, had a positive but feeble left axial pulse, and an absent brachial and radial pulse. Vitals signs were unremarkable. Blood samples revealed pro-inflammation profile. Autoimmune and infectious causes were ruled out. Echocardiogram was negative for intracardiac thrombus (60% ejection fraction). Doppler ultrasound revealed an echogenic material within the left axillary artery extending to the brachial artery with absent blood flow in radial and cubital arteries consistent with thrombosis. Peripheral angiogram showed total occlusion of axillary artery (Figure 1).

## 2 | DIAGNOSIS

### 2.1 | Arterial thrombosis due to COVID-19 infection

Gaining increasing interest recently, the association of coagulopathy with COVID-19 has been demonstrated by blood biomarkers and clinical events such as pulmonary embolism, ischemic stroke, and ischemic myocardial injury.<sup>1,2</sup> Less frequently, arterial thrombosis has also been reported, representing a vascular emergency that can result in severe



**FIGURE 1** Peripheral angiogram showing interruption of arterial flow in axillary artery (A, B) and absence of flow from the brachial, radial, and ulnar arteries (C, D)

morbidity including disability, chronic pain, limb loss, mortality, and continues to pose a challenge. Timely recognition and diagnosis are important prerequisites for successful treatment and patient prognosis, to shorten the duration of the ischemia as much as possible.<sup>3</sup>

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2021 The Authors. *JACEP Open* published by Wiley Periodicals LLC on behalf of American College of Emergency Physicians

When arterial thrombosis is suspected, it is essential to rule-out common etiologies (autoimmune, atherosclerotic, peripheral arterial disease, vascular trauma, and atrial fibrillation)<sup>4</sup> and viral infections like COVID-19. An appropriate procedure for managing these cases can be life-saving and it should be oriented according to the expertise of specialists and the protocols in force for the management of thrombotic pathologies. Treatment can include anticoagulation; alternatively, thrombectomy (endovascular/open) is used in other patients according to the symptoms and overall severity of the disease. In addition, having equipment and hemodynamic centers is essential for managing this type of patient, given the high requirement for endovascular management. Chronic anticoagulation is indicated to prevent re-thrombosis, given persistent endothelial injury from the virus. The need for further research studies to form guidelines for the prevention and treatment and to clarify the relationship between COVID-19 and thrombotic phenomena is highlighted.

The patient was started on therapeutic anticoagulation with heparin and underwent open thromboembolectomy of left subclavian, axillary, brachial, radial arteries, and endarterectomy of brachial artery. Post embolectomy, the patient had palpable pulses. He was discharged with rivaroxaban (20 mg/day) and aspirin (100 mg/day).

#### INFORMED CONSENT

Informed consent was obtained from the patient.

#### ORCID

María Cristina Martínez-Ávila  <https://orcid.org/0000-0002-1542-0249>

#### REFERENCES

1. Zamboni P. COVID-19 as a vascular disease: lesson learned from imaging and blood biomarkers. *Diagnostics*. 2020; 10: 440.
2. Abou-Ismaïl MY, Diamond A, Kapoor S, Arafah Y, Nayak L. The hypercoagulable state in COVID-19: incidence, pathophysiology, and management. *Thromb Res*. 2020; 194: 101-115. <http://doi.org/10.1016/j.thromres.2020.06.029>.
3. Van DH, Boesmans E, Defraigne JO. L'ischémie aiguë des membres inférieurs [Acute limb ischemia]. *Rev Med Liege*. 2018; 73(5-6): 304-311. French. PMID: 29926571.
4. Fukuda I, Chiyoya M, Taniguchi S, Fukuda W. Acute limb ischemia: contemporary approach. *Gen Thorac Cardiovasc Surg*. 2015; 63(10): 540-548. Epub 2015 Aug 1. PMID: 26232356.

**How to cite this article:** Almanza-Hurtado A, Rodríguez-Yanez T, Martínez-Ávila MC, Paternina-Mendoza MC, Martínez-Monterrosa JL. A man with pain and bluish discoloration of left arm. *JACEP Open*. 2021;2:e12611. <https://doi.org/10.1002/emp2.12611>.