



Case Report

Phlegmasia cerulea dolens during the SARS-COV-2 pandemic: What management ?

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1. Introduction

The SARS-COV-2, is currently qualified by the World Health Organization as a real infectious pandemic, causing a very large number of deaths in the world. This pandemic has led to the mobilization of all caregivers to manage the flow of patients with Covid-19. Thus, we describe in this article, the management of a Phlegmasia Cerulea Dolens in a young woman, taken care of in the vascular surgery department of the Mohammed VI University Hospital; during the pandemic of COVID-19.

1.1. Case report

This is a young 40-year-old female patient, mother of 3 children, diabetic and hypertensive under treatment, who consulted to emergencies for an acute edema of the lower limb with cyanosis extended to the left thigh;

The clinical diagnosis of blue phlebitis was suspected due to the presence of a painful and voluminous edema of the left lower limb of rapidly progressive installation, going up to the root of the thigh, associated with signs of acute ischemia, with in particular coldness and cyanosis of the whole limb (Fig. 1); the popliteal and distal pulses were absent, with the presence of an important compartment syndrome, the whole evolving in a context of alteration of the general state and dyspnea (Fig. 1).

On the paraclinical level, the patient had benefited before her arrival

at the hospital of an arterio-venous echodoppler of the left lower limb, which showed a massive proximal and distal deep venous thrombosis ilio-femoral-sural; with damping of the arterial flow in distality; The biology revealed mainly a rhabdomyolysis with a creatine phosphokinase (CPK) level of 970 U/L, testifying the muscular suffering; also, a moderate renal insufficiency without hyperkalemia, and with a creatinine level of 17 mg/l corresponding to a clearance of 50 ml/min;

After conditioning the patient and starting a curative dose anticoagulant treatment based on low molecular weight heparin (LMWH) at a dose of 100 U/Kg/12 hours of Enoxaparin Sodium 8000 IU; A cardiac ultrasound was performed urgently, thus eliminating the indirect signs of a pulmonary embolism; then an CT angioscan of the lower limbs was requested, which showed the permeability of the arterial axes with a delay of visualization of the arteries of the legs which are compressed by the important muscular edema (Fig. 2),.

Relief aponeurotomies of the anterolateral and internal muscular lodges of the leg were performed as an emergency; then secondarily, of the muscular lodges of the thigh (Fig. 3and4).

In the intensive care unit, the evolution was marked by the worsening of the local condition of the limb and the alteration of the general condition of the patient, who is obnubilated, and presenting arterial hypotension quantified at 70/30 mmhg with tachycardia at 123 Bpm, as well as respiratory distress with polypnea at 30 cycles/min with oxygen saturation of the blood (SpO₂) in ambient air at 85%; For this, the patient was intubated and put under respiratory assistance and vasoactive drugs; on the other hand, a syndrome of severe reperfusion is installed,

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Fig. 1. Phlegmasia Cerulea Dolens of the left lower limb.

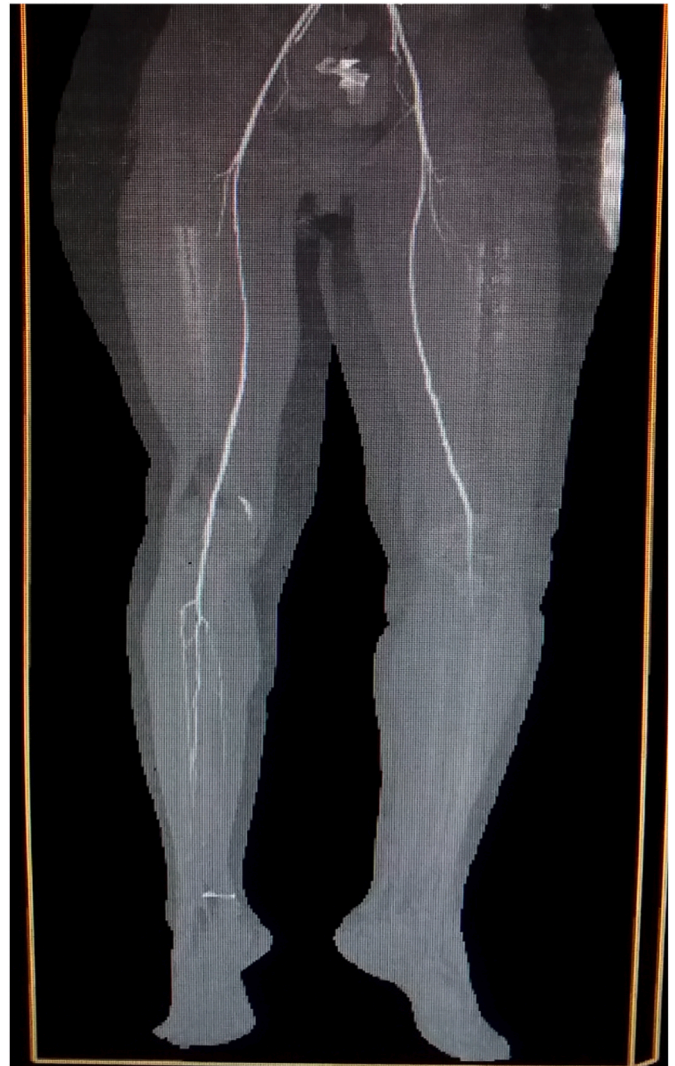


Fig. 2. CT Angioscan of the lower limbs.

represented by the aggravation of the severe renal insufficiency with a clearance of the creatinine to 33 ml/min; associated with a disturbance of the biological balance, and in particular a hyperkalemia to 6.9 mmol/l, a metabolic acidosis with an alkaline reserve level of 10 mmol/l, an increase in the CPK level to 31,000 U/L, and finally the appearance of disseminated intravascular coagulation (DIC) marked by a deep thrombocytopenia to 30,000/mm³ and by the disturbance of the haemostasis balance;

In spite of an adequate management in intensive care with respiratory assistance and hemodialysis sessions, multiple transfusions, and then the realization of a major *trans*-femoral amputation on the third day, the final evolution was marked by the clinico-biological aggravation, leading to the death of the patient on the fifth day.

(SCARE 2020) [10].

2. Discussion

Phlegmasia Cerulea Dolens (PCD) is a severe form of deep vein thrombosis (complicating 2–10% of DVTs [1]); it has a poor prognosis with a significant morbi-mortality [2]: risk of amputation (50%) and death (40%) [3–5]; Of which 22% by pulmonary embolism; The left lower limb is four times more affected than the right. It is more frequent in women than in men (sex ratio M/F = 0.75) [5]; and up to 40% of blue phlebitis is paraneoplastic [6];

There are 3 evolutionary stages according to the first description by Grégoire in 1938 ([7,8]): venous stasis with congestion [2,9]; arterial repercussions: initially moderate (weakening of the pulses), which can

evolve rapidly towards the constitution of major ischemia; and finally, more or less extensive gangrene;

During the period of the COVID-19 pandemic, we took charge of this young 40-year-old patient for a severe blue phlebitis of the left lower limb, in acute arterial ischemia, secondary to an important compartment syndrome, the whole evolving in a context of respiratory distress;

The management of the patient was disrupted by the existence of some obstacles related to the conditions of transfer from the hospital of reference to our structure and then the working conditions imposed to cope with the pandemic of COVID 19 and particularly the requisition of staff and resuscitation beds to take care of patients with COVID-19;

Therefore, after transfer to the intensive care unit, there was a progressive worsening of the general condition of the patient and the local condition of the limb; due to the massive reperfusion syndrome, which is a complication well described in the literature ([1,2]); in the end, the evolution was unfavorable, marked by the amputation of the limb and then by the death of the patient;

It is true that blue phlebitis is a serious disease that is life-threatening, with a risk of death that can reach 40% according to the literature; however, we have the right to ask ourselves the following question and considerate it as a take-away lesson: Is the context of the COVID-19 pandemic also an element of poor prognosis, which may correspond to a risk factor that disrupts the management of the patient or aggravates the pathology by a possible contamination?



Fig. 3. Aponeurotomy of the thigh muscular lodges.

3. Conclusion

The take away lesson of a Phlegmasia Cerulea Dolens is that's a serious disease, because of its important morbi-mortality due to the risk of amputation of the limb, pulmonary embolism or death; we report in this article our management of a blue phlebitis, in a young woman during the COVID-19 pandemic; the latter having influenced and conditioned our conduct in the different diagnostic and therapeutic stages.

Declaration of competing interest

All authors disclose any conflicts of interest.

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We have any financial sources for our research.

Ethical approval

The study committee of the university hospital center approves the favorable opinion to publish this work.

Consent

Written informed consent was obtained from the patient for 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.



Fig. 4. Aponeurotomies on the left leg.

Author's contribution

Dr.OA, have analysed and performed the literature research, Pr. AR, Pr. AB, Pr. OE, performed the examination and performed the scientific validation of the manuscript. Dr. Oussama ANANE was the major contributor to the writing of the manuscript. All authors read and approved the manuscript.

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Availability of data and material

The datasets in this article are available in the repository of the ENT database, CHU Mohamed VI Oujda, upon request, from the corresponding author.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2021.102541>.

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