Septic shock due to *Chromobacterium violaceum* after a trip to Azores Islands. A fatal and unusual pathogen

Shock séptico por *Chromobacterium violaceum* tras un viaje a las Islas Azores. Un patógeno fatal e inusual

Dear Editor:

We present the case of a 28-year-old woman with no relevant past medical history who visited the ER with a 1-week history fever of 39 °C after coming back from a trip to the Azores. Since symptom onset, she started developing an ulcerative lesion with an erythematous halo around the periphery on her back, which progressed to a necrotic scab. Despite initial treatment with cefadroxil and antipyretics, she continued to have a high fever along with abdominal pain. Upon arrival at the ER, a generally painful abdomen and hypotension were noted. Emergency lab tests revealed acute renal failure (creatinine levels of 1.83 mg/dL), lymphopenia (100), thrombocytopenia (140,000), elevated transaminases with aspartate aminotransferase (AST) 125 U/L and alanine aminotransferase (ALT) 93 U/L, and an increase in C-reactive protein (CRP) 385 mg/L. An abdominal ultrasound revealed the presence of hepatosplenomegaly as the only finding. Microbiological screening was initiated, including viral and bacterial serologies, *Plasmodium* antigen testing, and cultures from the wound exudate and blood; the patient was admitted to the intensive care unit (ICU) for monitoring and further evaluation.

The initial course of the disease was unfavorable, with high fever, abdominal pain, and progressive respiratory deterioration, requiring high-flow nasal oxygen therapy. Chest X-ray at admission revealed interstitial infiltrates with basal consolidations. Empirical coverage with ceftriaxone, cloxacillin, and doxycycline was initiated while awaiting results and observing the patient's progression. A few hours after admission, the patient started developing overt respiratory failure requiring urgent orotracheal intubation, with hypoxemia refractory to alveolar recruitment maneuvers, and progressive hemodynamic instability in refractory vasoplegic shock treated with norepinephrine, vasopressin, and corticosteroids; metabolic acidosis with hyperlactatemia and oliguria. In the presence of multiple organ dysfunction (Sequential Organ Failure Assessment score, SOFA 12), empirical coverage was expanded to include linezolid and meropenem in addition to doxycycline, and continuous renal replacement therapy—hemodiafiltration—was initiated with regional citrate anticoagulation. Afterwards, the Microbiology Department informed us of the isolation of *Chromobacterium violaceum* in blood cultures, leading to the addition of levofloxacin after reviewing the literature, given the resistance profile of this microorganism.

DOI of refers to article:
https://doi.org/10.1016/j.medin.2024.09.006

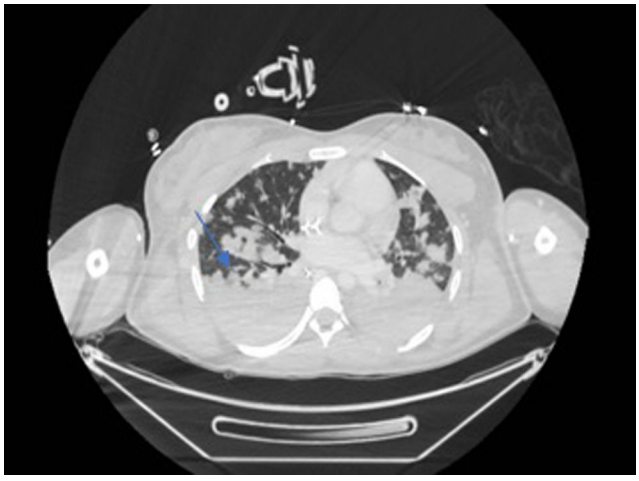

Figure 1 Coalescent septic emboli in all pulmonary lobes.

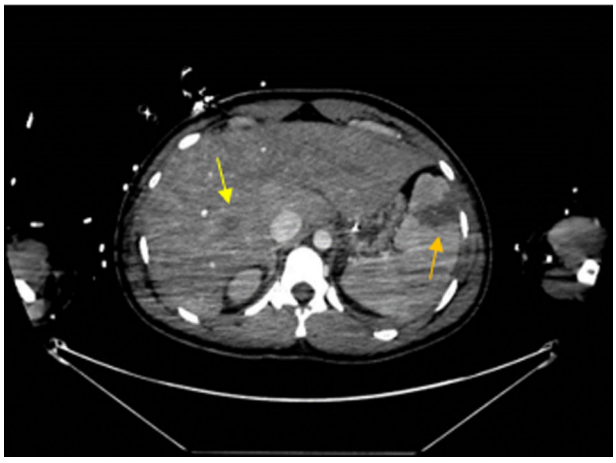

Figure 2 Small abscesses in hepatic segments VIII and V-VI. Area of infarction from the periphery to the splenic hilum.

Gradually, the patient stabilized both from a respiratory and hemodynamic perspective, allowing for her transfer for further evaluation using computed tomography (CT), which revealed multiple pulmonary abscesses (Fig. 1), 2 liver abscesses, and splenic infarction (Fig. 2)[1]; no findings were noted in the brain.

Twenty-four hours after admission, an antibiogram of *Chromobacterium violaceum* was obtained, showing sensitivity to carbapenems and quinolones. The same pathogen was isolated in wound exudate and in tracheal aspirate. Plasma levels of meropenem were monitored. Both trough and 50% administration levels fell within the therapeutic range for a minimum inhibitory concentration (MIC) of 0.12.

The clinical course over the following days was favorable, with vasopressor support being withdrawn, and successful extubation; in fact, the patient no longer required oxygen therapy, and renal failure resolved at the time of her ICU discharge. She was, then, transferred to the general ward 12 days later.

Although *Chromobacterium violaceum*-related infections in humans are rare, they are reported to have mortality rates of up to 65%. This is an atypical facultative anaerobic Gram-negative bacillus, an uncommon pathogen with <300 cases

reported in the literature. Classically, it has been considered endemic to tropical and subtropical regions; infection by this bacterium typically occurs after exposure of wounds to contaminated water or soil.[2]

It typically presents with skin or soft tissue infections that can be associated with pulmonary and liver abscesses, meningitis, osteomyelitis, endocarditis, and can rapidly progress to multiple organ dysfunction with high lethality.[3,4]

Although the optimal antimicrobial treatment and its duration are not well established, management can be challenging since this microorganism is known for its resistance to many routine antimicrobials such as penicillins and cephalosporins.[5] It is generally susceptible to fluoroquinolones, chloramphenicol, tetracycline, trimethoprim/sulfamethoxazole, carbapenems, and aminoglycosides.

In conclusion, in the management of sepsis caused by *Chromobacterium violaceum*, clinical suspicion, early diagnosis, and prompt and appropriate treatment are key to ensuring patient survival. These are unusual infections that require a high index of suspicion, especially if the patient has a history of outdoor activities such as contact with stagnant water, rivers, lakes, or wounds and/or lesions that could serve as the entry point.[6]

References

1. Mohammed JM, Sajana TM, Raj R, Rachana BA, Paul G, Pillai PR. 'The Violet Killer'-Successful Treatment of an Infant with Chromobacterium violaceum Sepsis. J Trop Pediatr. 2021;67(4):fmab076.
2. Chowdhury M, Lee N, Wey EQ. Chromobacterium violaceum causing disseminated soft tissue and pulmonary abscesses in a traveller returning from the Azores. Access Microbiol. 2021;3:000251.
3. Yang CH, Li YH. Chromobacterium violaceum infection: a clinical review of an important but neglected infection. J Chin Med Assoc. 2011;74(10):435–41.
4. Attonito J, Tomasello G, Barrett B, Wauters R, Adams A, Gilbert L. Chromobacterium violaceum in a U.S. Marine: a case report. Mil Med. 2024;189(5-6):e928–31.
5. Saboo AR, Vijaykumar R, Save SU, Bavdekar SB. A rare nonfatal presentation of disseminated Chromobacterium violaceum sepsis. J Microbiol Immunol Infect. 2015;48(5):574–7.
6. Anjaneyan G, Bhaskaran P, Vijay S, Shashindran N, Jayakumar C. Chromobacterium violaceum sepsis with extensive vesiculobullous eruptions. Int J Dermatol. 2022;61(1):106–8.

Beatriz Morillo Muela, Alejandro José Martín Damián, Adela Fernández Galilea*, Álvaro López López

Unidad de Medicina Intensiva, Hospital Universitario Virgen Macarena, Sevilla, Spain

* Corresponding author.
E-mail address: adelafer_90@hotmail.com
(A. Fernández Galilea).

Inhaled sedation in the ICU. Still a long road ahead

Sedación inhalada en la UCI. Un largo camino aún por recorrer

Dear Editor:

We have read with interest the special article on inhaled sedation by the Sedation, Analgesia and Delirium Working Group (GTSAD) of the SEMICYUC.[1]

Undoubtedly, the clinical management of prolonged sedation in critical patients in the Intensive Care Unit (ICU) continues to raise questions.

However, the introduction of a new medication or technique should be based on safety studies, clinical trials (CTs) and cost-effectiveness studies that confirm it as an alternative to standard clinical practice. For this reason, we wish to express our caution regarding the recommendation of the authors about inhaled sedation as a possible first-line treatment for prolonged sedation, due to the paucity of evidence published to date.

DOIs of original articles:
https://doi.org/10.1016/j.medin.2024.09.007,
https://doi.org/10.1016/j.medine.2024.05.011.

The cited meta-analyses coincide in describing the quality of the included studies as suboptimal and with a risk of publication bias. The study samples are small, with short sedation periods and limited clinical outcomes. The usual primary endpoint is wake time, which is reduced by a few minutes compared with intravenous propofol sedation, with no significant effect on the duration of mechanical ventilation. Therefore, this technique does not appear to be superior to propofol for short periods of sedation.

In terms of cost-effectiveness, the NICE guidelines have reported that only inhaled sedation with Sedaconda ACD-S provides cost savings compared with intravenous propofol when the length of ICU stay is less than 1.5 days.[2] In addition, the availability and cost of inhaled therapy remains a challenge for the manufacturers in many countries.

The clinical indications for inhaled sedation reported by the authors are controversial due to the low quality of the evidence. To date, the CTs have demonstrated good quality sedation with limited clinical outcomes such as shorter wake times, less inflammation and reduced opioid use, particularly in patients with status asthmaticus, status epilepticus or difficult sedation.[3] Several CTs are currently underway that will add to the evidence in this area (NCT05327296, NCT05312385, NCT04341350, NCT04415060).

In a recent clinical trial of 79 mostly postoperative patients mechanically ventilated for 48 h, the subjects were randomized to inhaled sedation versus propofol and midazolam for an average of 6 days. The patients in the inhaled