

Multi-organ failure after acute kidney injury in patient with HIV and COVID-19

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Abstract

We describe the first death in Libya from coronavirus disease 2019 (COVID-19) presenting as acute kidney failure in an 86-year-old woman in Tripoli with no recent travel history. She had a history of type 2 diabetes mellitus and human immunodeficiency virus (HIV) infection, for which she reported non-compliance with treatment. On 15 March 2020, she was diagnosed with lobar pneumonia and her condition did not improve. On 30 March she presented to Tripoli University Hospital Emergency Department with a cough, temperature of 39°C, respiratory rate of 24 breaths/min, pulse of 110 beats/min and blood pressure of 130/80 mmHg. Nasopharyngeal swab and sputum were negative for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on real-time RT-PCR. On 1 April 2020, the patient's status deteriorated and she was diagnosed with acute kidney injury as a complication of sepsis, with a urea level of 240 mg/dL (reference range 5–50 mg/dL) and creatinine level of 7.69 mg/dL (reference range 0.4–1.3 mg/dL). She was referred for dialysis at Tripoli University Hospital on 2 April. However, the patient died, despite attempted resuscitation, from multiple organ dysfunction syndrome following acute kidney injury. A nasopharyngeal swab and sputum were collected, which were positive for SARS-CoV-2 on real-time RT-PCR. This case provides an insight into the importance of testing for SARS-CoV-2, in the context of an epidemic in all patients with atypical presentation, particularly those with associated HIV infection.

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Background

A novel coronavirus was reported as the source of severe viral pneumonia in Wuhan, Hubei Province, China at the end of December 2019 [1,2]. Since then, it has spread exponentially, contributing to a pandemic that has led to >6 million documented cases of coronavirus disease 2019 (COVID-19) reported to the WHO, including >373 000 deaths as of 1 June 2020 [3–5]. We describe the first confirmed fatal case of COVID-19 in Libya.

Case presentation

We report an 86-year-old woman in Libya with no recent travel history. She had a history of type 2 diabetes mellitus and human immunodeficiency virus (HIV) infection for which she reported non-compliance with antiretroviral therapy (zidovudine 300 mg (tablet) every 12 h). On 15 March 2020, she visited a local clinic in Tripoli with a cough and fever after attending a wedding with her family. She was diagnosed with lobar pneumonia and started amoxicillin and clavulanate 875 mg (tablets) every 12 h, prednisone 40 mg (tablets) every 12 h and mucolytic syrup. However, her condition did not improve. On 30 March the patient presented to Tripoli University Hospital Emergency Department with a cough, temperature of 39°C, respiratory rate of 24 breaths/min, pulse of 110 beats/min and blood pressure of 130/80 mmHg. A nasopharyngeal swab and sputum were collected,

which were negative for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on real-time RT-PCR at the National Centre for Disease Control in Tripoli. After that, the patient was sent home and advised to continue her treatment.

On 1 April 2020, she presented to Abu-Seta Respiratory Outpatient Clinic because of worsening cough, dyspnoea, headache and fever. However, the patient was referred to Alhadba Alkhadra Hospital by Abu-Seta Respiratory Outpatient Clinic, which refused to admit her because of a shortage of facilities. On admission to the hospital on 1 April 2020, her temperature was 38.5°C, respiratory rate 20 breaths/min, pulse 115 beats/min, blood pressure 100/60 mmHg and oxygen saturation 77% on room air. High-resolution CT showed lung infiltration, collapsed left lung due to underlying lung fibrosis, and ground-glass opacities in both lungs, mostly in the lower zone, with a peripheral

subpleural distribution (Fig. 1). The patient was placed on continuous positive airway pressure in the intensive care unit despite the suspicion of COVID-19 after high-resolution CT.

Complete blood counts were: lymphocyte count $0.40 \times 10^9/L$ (reference range 1.0×10^9 to $4.0 \times 10^9/L$); white blood cell count $10.8 \times 10^9/L$; platelet count $98 \times 10^9/L$ and haemoglobin concentration 13.1 g/dL. Liver function test abnormalities were: alkaline phosphatase 198 U/L (reference range 40–129 U/L); normal alanine aminotransferase 15 U/L (reference range 5–41 U/L) and aspartate aminotransferase 45 U/L (reference range 5–43 U/L). Lactate dehydrogenase test abnormalities peaked on admission day at 1200 U/L (reference range 120–300 U/L); ferritin 484 ng/L (reference range 30–400 ng/L) and glucose 182 mg/dL (reference range 70–120 mg/dL). C-reactive protein concentration was 532.2 mg/L (reference range <5 mg/L).

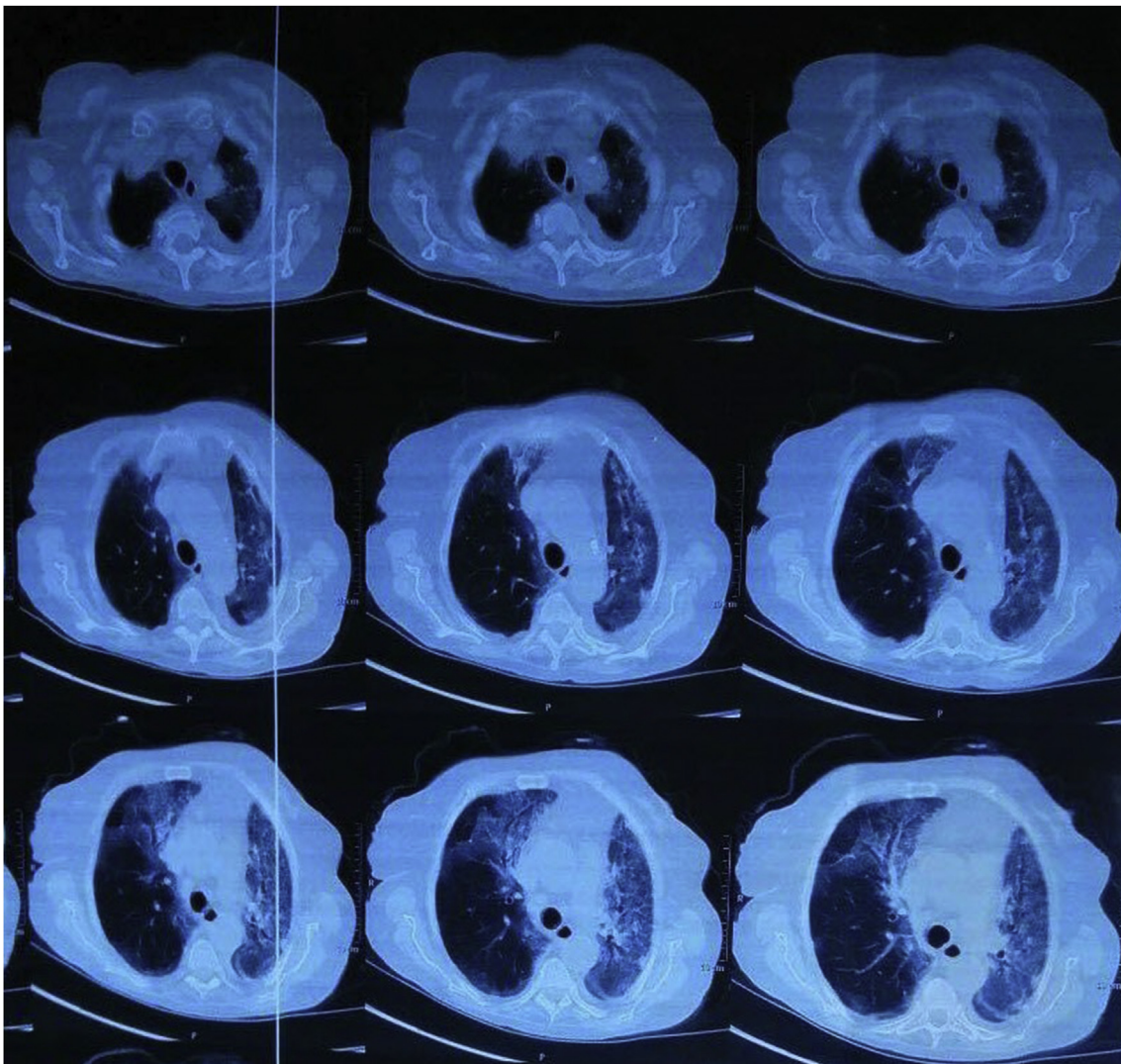


FIG. 1. Radiological findings of high-resolution computed tomography showed lung infiltration, collapsed left lung due to underlying lung fibrosis and ground-glass opacities in both lungs, mostly in the lower zone, with a peripheral subpleural distribution.

On 1 April 2020, the patient's status deteriorated and she was diagnosed with acute kidney injury, with a urea level of 240 mg/dL (reference range 5–50 mg/dL) and creatinine level of 7.69 mg/dL (reference range 0.4–1.3 mg/dL). The patient was referred for dialysis at Tripoli University Hospital on 2 April. However, she died, despite attempted resuscitation, due to multiple organ dysfunction syndrome following acute kidney injury. A nasopharyngeal swab and sputum were collected, which were positive for SARS-CoV-2 on real-time RT-PCR by the National Centre for Disease Control in Tripoli. However, her family members and health-care workers who managed the patient all tested negative for SARS-CoV-2 on RT-PCR. This case raises questions about SARS-CoV-2 transmission and testing capability in Libya.

Discussion and conclusions

Testing for SARS-CoV-2 as reported here is mandatory in any situation to avoid exposing care providers. This needs an important investment in testing capability. Civil war and fragility of the health-care system are ongoing challenges to Libya's ability to manage and control COVID-19. Therefore, a surveillance plan is needed in Libya to increase the capacity of the government to detect cases of COVID-19, as the National Centre for Disease Control in Tripoli has a low daily capacity to perform SARS-CoV-2 testing, with a mean daily testing capability of <50 test per day during March and April 2020 [6]. This case also provides an insight into the importance of co-infection between HIV and SARS-CoV-2. Immunocompromised patients may be at higher risk of complications and deterioration due to COVID-19 infection. Finally, physicians in charge of such patients should be aware that antiretroviral therapy for HIV-positive individuals does not seem to prevent COVID-19, especially those on lopinavir-ritonavir [7]. Also, we should emphasize that relying on PCR for diagnosis carries the risk of delaying treatment and management of suspected cases of COVID-19. This case provides an insight into the importance of testing for SARS-CoV-2, in the context of an epidemic, all patients with atypical presentations particularly those with associated HIV infection.

Ethical approval and consent to participate

Not applicable.

Consent for publication

Image is entirely unidentifiable, and there are no details on individuals reported within the manuscript, consent for publication of images may not be required.

Availability of data and materials

All data and report are available upon request.

Transparency declaration

The authors declare that they have no competing interests and no relationship with the industry.

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Authors' contributions

Conceptualization and data curation were by ME, AMo and OA. Formal analysis was by ME and investigation by ME, AMo, OA and AMs. ME and AMs wrote the original draft and ME, AMo, OA and AMs reviewed and edited the article.

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