

Diffuse alveolar haemorrhage due to atypical hemolytic uremic syndrome (aHUS) associated with COVID-19

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Key message

Delayed presentation of atypical HUS after COVID-19 with diffuse alveolar haemorrhage is uncommon and can be life threatening.

KEYWORDS

atypical hemolytic uremic syndrome, COVID-19, diffuse alveolar haemorrhage

CLINICAL IMAGE

A 78-year-old female with a significant medical history of COVID-19 1 month prior presented to the emergency

department with shortness of breath and hemoptysis. Her heart rate was 112/min, respiratory rate was 34/min, blood pressure was 120/80 mm/hg, temperature was 98.6 F, and oxygen saturation was 70%. Initial laboratory data showed

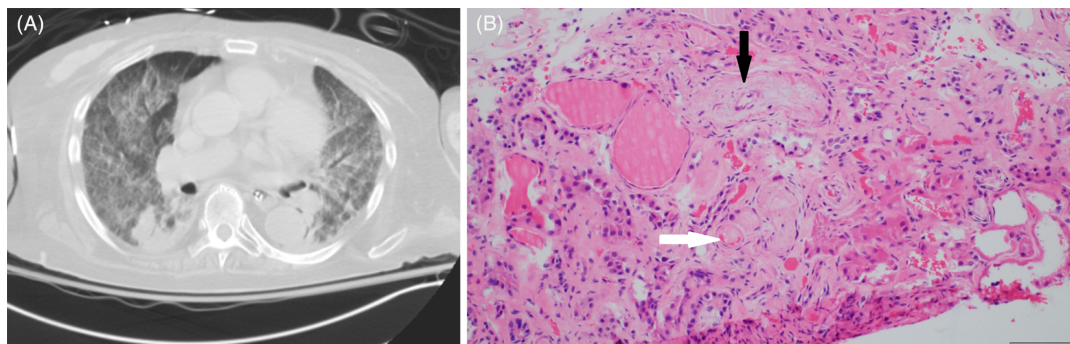


FIGURE 1 (A) CT of the chest showing bilateral diffuse ground glass opacities. (B) H&E stain (20×) vascular thrombotic microangiopathy like changes including mucoid intimal edema (black arrow) and extravasation of red blood cell fragments into the arteriolar wall (white arrow) along with mild onion-skinning of the arterioles.

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anaemia, thrombocytopenia, schistocytes on peripheral smear and acute renal failure. Computed tomography of the chest revealed bilateral diffuse ground glass opacities (Figure 1A). She was intubated and underwent emergent bronchoscopy, which revealed diffuse alveolar haemorrhage. Bronchoscopy cultures were negative. Further blood work revealed hemolysis, a negative Coombs test, low ADAMTS-13 protease (von Willebrand factor protease) activity and normal complement levels. Extensive immunological workup, including those for antiphospholipid syndrome, were negative. Renal biopsy revealed vascular and glomerular thrombotic microangiopathy changes (Figure 1B). The patient was treated with plasmapheresis and eculizumab. Her oxygenation and ventilation deteriorated. The patient's family decided on comfort measures, and the patient died. COVID-19 has recently been identified as a trigger for acute illness or relapse of aHUS.^{1,2} Delayed presentation of atypical HUS post-COVID-19 with diffuse alveolar haemorrhage is uncommon. Treatment includes steroids, plasmapheresis and monoclonal antibodies targeting complement C5.

AUTHOR CONTRIBUTIONS

The authors have contributed to the study conception, design, acquisition, analysis, interpretation of the data, and drafting of the manuscript and final version of the manuscript for publication.

CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY STATEMENT

Data is save in password protected computer and will be available upon reasonable request.

ETHICS STATEMENT

The authors declare that appropriate written informed consent was obtained for the publication of this manuscript and accompanying images.

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REFERENCES

1. Kaufeld J, Reinhardt M, Schröder C, Bräsen JH, Wiech T, Brylka P, et al. Atypical hemolytic and uremic syndrome triggered by infection with SARS-CoV2. *Kidney Int Rep.* 2021;10:2709–12.
2. Ville S, Le Bot S, Chapelet-Debout A, et al. Atypical HUS relapse triggered by COVID-19. *Kidney Int.* 2021;99:267–8.

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