

## SMP Emergency Medicine and Critical care

## Two Cases of COVID-19 Related Myositis Causing Severe Rhabdomyolysis

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## Abstract

We present two cases of COVID-19 related myositis complicated by the development of rhabdomyolysis causing stage 3 acute kidney injury (AKI) admitted to our hospital within 24 hours. COVID-19 related myositis is reported in the literature<sup>1</sup> but the severity of the myositis and the resulting AKI makes these cases unusual.

**Keywords:** Covid-19; Myositis; Rhabdomyolysis

## Case 1

A 37-year-old man presented to the emergency department of our hospital with a two-day history of haematuria and loin pain following five days of muscle pains and fever. He had no respiratory symptoms. He was a non-smoker. He had not received a COVID vaccination. He had a history of hypertension, but did not take anti-hypertensive medication. He had two admissions to hospital over the last 15 years for viral related illnesses resulting in episodes of myositis, self-limiting microscopic haematuria and acute kidney injury. He took no medications.

On examination he was obese with a body mass index (BMI) 45. He was tachycardic (104 beats per minute) and febrile (37.8C). Urine dipstick was positive for blood and protein. SARS-COVID19 PCR test was positive. Serum creatinine was 160  $\mu\text{mol/L}$  which was elevated from baseline 98  $\mu\text{mol/L}$  in 2017. Creatine kinase (CK) was markedly elevated at 25352 U/L. Chest film revealed right lower lobe consolidation and he was treated with intravenous fluid, antibiotics and dexamethasone.

Over the following days his CK continued to rise peaking at 368,611 U/L associated with an AKI 3 complicated by hyperkalemia. He was transferred to intensive care for renal replacement therapy three days after admission where he received high flow oxygen therapy, continuous veno-venous hemodiafiltration and remdesivir in addition to dexamethasone and antibiotics. An IL-6 inhibitor was not prescribed due to the elevated aspartate transaminase (AST) and alanine aminotransferase (ALT).

Over the following ten days his muscle pain improved and CK had fallen to 962 U/L. At the time of writing, he still required intermittent hemodialysis.

## Case 2

A 22-year-old man presented to the emergency department with haematuria, vomiting, lethargy and muscle pain. He had no respiratory symptoms. He was a non-smoker and had not received a COVID vaccination. He had tested positive for COVID-19 five days before admission to hospital. His past medical history was notable for an admission to another hospital with myositis five years ago which was thought to be related to influenza infection. He took no medications.

On examination he was tachycardic (113 beats per minute) and afebrile. BMI was 25. Urine dipstick was positive for blood and protein. Serum creatinine was 200 $\mu\text{mol/L}$  with no previous measurements to provide a baseline. CK was 623724 U/L with an ALT 335 U/L, AST 3057 and LDH 17639 U/L. Chest film revealed clear lung fields.

He received treatment with an antiemetic, intravenous fluid, remdesivir and sodium zirconium cyclosilicate. Over the following days his renal function continued to deteriorate with serum creatinine peaking at 850 $\mu\text{mol/L}$  on day 11 of his admission. With supportive care his urine output improved and by day 15 of admission his creatinine had fallen to 556 $\mu\text{mol/L}$  without the need for renal replacement therapy.

## Discussion

These cases were remarkable because the patients were admitted to our hospital with similar presenting features within 24 hours of each other as the Omicron variant of COVID 19 was becoming the dominant strain in the United Kingdom (UK)<sup>2</sup>. Both patients were unvaccinated against COVID 19. Both patients had described similar illnesses in the past and it is possible they both have an underlying condition that predisposes them to developing myositis such as a metabolic myopathy.

There is no agreed therapeutic management of COVID 19 related rhabdomyolysis<sup>1</sup>. Even within our own hospital there were different opinions about the benefits of steroids, IL-6 inhibitors and antivirals. Ultimately, individual patient factors were important in determining the proposed treatment and it is too early to draw conclusions about the impact of these interventions.

We bring these cases to the attention of colleagues with the hope of sharing our experience of managing patients with this complication and contributing to the developing literature on COVID19 infection.

## References

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