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The Unusual Suspects: A Curious Case of Acute Kidney Injury: Questions

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Case Summary:

A previously healthy 8-year-old boy presented for evaluation of three weeks of daily fevers to 101 °F, myalgia, gingival swelling, mouth sores, blurry vision, and periorbital rash with new onset of dark urine. His family history was significant for rheumatologic disease without known renal involvement. Initial workup demonstrated mild anemia with hemoglobin of 10.9 g/dL, low reticulocyte count, few schistocytes on peripheral smear, thrombocytopenia with platelets of 8000/mm³, albumin 2.5 g/dL, AST 2084 IU/L, ALT 787 IU/L, GGT 223 IU/L, creatine kinase of 10000 IU/L, ferritin of 4290 ng/mL, fibrinogen 191mg/dL, triglycerides 160mg/dL, and creatinine increased from a baseline of 0.45mg/dL to 1.0 mg/dL. Other inflammatory indices were negative and infectious diseases evaluation did not suggest an infectious etiology of his symptoms. Urinalysis showed 3+ blood and 3+ protein on dipstick. His initial urine and accompanying microscopy are pictured in Figure 1.

Graphical Abstract

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The answers to these questions can be found at <http://dx.doi.org/10.1007/s00467-018-4168-z>.

Conflict of interest

The authors declare no conflict of interest

Keywords

acute kidney injury; rhabdomyolysis; dermatomyositis

He did exhibit impressive gingivitis and gingival hyperplasia, bilateral eyelid edema and erythema, and slight erythema on cheeks and his nasal bridge. Otherwise, his physical examination was unremarkable and vital signs were normal.

He was placed on an aggressive intravenous hydration regimen and observed closely in the intensive care unit. On the following day, his platelets remained low with stable anemia. A dilated fundoscopic examination revealed pseudo-Purtscher retinopathy characterized by scattered cotton-wool spots without associated hemorrhages. Pelvic MRI confirmed diffuse myositis. He underwent a bone marrow biopsy, followed by initiation of steroids and a pheresis session. The next day, he had decreased urination with worsening volume overload and hypertension requiring initiation of renal replacement therapy. His anemia acutely worsened with persistent thrombocytopenia. Coombs testing was negative. A muscle biopsy was obtained as shown below:

Questions:

1. How would you describe the findings in figures 1 and 2?
2. What is your differential diagnosis for oliguric acute kidney injury (AKI) in the setting of the above findings?
3. How do you manage this patient?

Fig 1.
Urine sample collected on day one post-centrifugation (a) and on microscopic analysis at 40x magnification (b)

Fig 2.
Muscle biopsy