

# Suspected Doxycycline Induced Acute Interstitial Nephritis

Andrew Abrahamian, MD<sup>1\*</sup>, Cameron Burmeister, MD<sup>1</sup>, Srinu Hejeebu, DO<sup>1</sup>

<sup>1</sup>Division of Internal Medicine, Department of Medicine, The University of Toledo, Toledo, OH 43614

\*Corresponding author: [andrew.abrahamian@utoledo.edu](mailto:andrew.abrahamian@utoledo.edu)

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**Introduction:** This report describes a case of a patient presenting with diabetic ketoacidosis who experienced progressively worsening acute kidney injury after exposure to multiple nephrotoxic agents during hospital course. The patient's presentation led to a relatively broad differential for acute kidney injury (AKI), which included contrast-induced nephropathy, vancomycin-induced nephrotoxicity, and interstitial nephritis secondary to antibiotic use. Interstitial nephritis associated with doxycycline use is poorly described in the literature, which delayed cessation of suspected offending agent.

**Case Presentation:** A 28-year-old male with past medical history of diabetes mellitus type 2 presented with diabetic ketoacidosis. On admission, patient underwent CT neck with contrast for evaluation of cellulitis and was placed on empiric antibiotic therapy (vancomycin, piperacillin-tazobactam and metronidazole). Patient was later transitioned to oral doxycycline. Within 24 hours of starting doxycycline, the patient developed AKI. Despite fluid resuscitation and oral prednisone, the patient's kidney function rapidly worsened. Doxycycline was discontinued, and 48 hours after the last dose, renal function began to steadily improve. Electron microscopy findings from renal biopsy exhibited severe acute interstitial nephritis.

**Discussion:** Pathology findings confirm acute interstitial nephritis, ruling out other potential causes including contrast-induced nephropathy and vancomycin-induced tubular necrosis. The patient experienced a decline in renal function less than 7 days from introduction of an offending agent, which would indicate a repeat exposure. The patient received doxycycline in the week prior to admission. Drug-induced acute interstitial nephritis characteristically improves after withdraw of the offending drug. Doxycycline was the only agent for which kidney function improved after withdraw.