Uromycitisis Poisoning Results in Lower Urinary Tract Infection and Acute Renal Failure: Case Report

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Abstract

Uromycitisis is a rare but serious condition that affects over 2,000 mostly adult men and women in the United States each year. Described simply, it is caused by prolonged failure to evacuate the contents of the bladder and can result in a serious infection of the lower urinary tract known as "uromycitisis poisoning," which, if untreated, can cause acute renal failure and has an associated high mortality. Because people with uromycitisis often cannot hold in their urine and feel they must—and, at times, actually must—urinate in inappropriate places, sometimes running afoul of local public sanitation ordinances, they can feel great personal shame and place themselves in legal jeopardy, through no fault of their own. We report the case of a 37-year-old male who suffers from uromycitisis, was prevented from urinating in public, was admitted to the emergency room with uromycitisis poisoning, was misdiagnosed, and was referred to our institution for treatment.

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Introduction

In the United States each year, over 2,000 mostly adult men and women are afflicted by uromycitisis—a rare and potentially serious urological condition.[1] Uromycitisis is caused by prolonged failure to evacuate the contents of the bladder and can result in an infection of the lower urinary tract known as "uromycitisis poisoning." While uromycitisis poisoning is characterized by many of the same symptoms as a urinary tract infection—burning sensation when urinating, urine that appears cloudy, and intense pelvic pain—it can spread to and affect the kidneys, resulting in even more intense upper back and flank pain, high fever, nausea and vomiting, and shaking and chills. If untreated usually within 12 hours by high-dose antibiotics, acute renal failure can result, leading to general failure to eliminate excess fluid, a dangerous imbalance in electrolytes, and general inability to evacuate excess waste materials from the bloodstream. In extreme cases, it can cause death.[2]

We report the case of a 37-year-old male who suffers from uromycitisis, was prevented from evacuating his bladder in public, was admitted to the hospital emergency room with uromycitisis poisoning, was misdiagnosed by treating physicians, and was ultimately referred to our institution for treatment. He recovered and survived.

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[1] Reimenschneider J, van Nostrand M, Costanza GL, et al. Incidence of uromycitisis poisoning in the United States, 2015: not a laughing matter. *J Adv Urol*. 2016;15:323-334.
[2] Sacamano R, Ramirez C, Sidaredes S, Romanowski FD. Uromycitisis poisoning leading to acute renal failure. *Mex J Urol*. 2012:45:34-41.

Case presentation

A 37-year-old white male was in a large suburban mall parking garage and was unable to locate his car. After more than an hour of walking up and down flights of stairs and through row after row of cars, searching fruitlessly for his own car, he felt a powerful urge to urinate. With no restroom available in the garage, and knowing that he suffers from uromycitisis, he feared that if he did not urinate immediately he would develop uromycitisis poisoning. Because of his medically diagnosed condition, and because of the progressive policies of the city in which he resided (New York City), he had been issued a public urination pass, which shielded him from legal prosecution under public sanitation ordinances if, by medical necessity, he urinated in public and was caught and detained and issued a citation by civil authorities.

That day, though, he was not carrying his pass on his person; his younger male sibling had absconded with it. Nor, in fact, was he, at the time, even in the city in which the pass was issued. Even so, and weighing the risks, he decided to urinate on a wall in the parking garage. However, a mall security guard witnessed what he was about to do, was unconvinced by the man's protestations and explanations, took him into custody, and notified the local police. The elapsed time between when the man first felt the urge to urinate and when he arrived at the police station was approximately 3 hours. No authority believed him with respect to his condition, and at all turns he was denied access to a toilet. Essentially, he had been forced to "hold it" for 3 hours. This was much too long for a uromycitisis sufferer. He developed uromycitisis poisoning, characterized by intense abdominal and lower back pain, nausea and vomiting, and severe shaking, and he was transported directly from the jail to the hospital emergency room.

In the emergency room, he was generally responsive and did manage to inform physicians about his condition. Standard urological tests were run. The results were as follows: complete blood count (white blood cells, 14K/mm^3; red blood cells, 9.6M/mm^3; hemoglobin, 15 g/dL; hemotocrit, 45%; platelets, 550K/mm^3); urinalysis (leukocyte esterase, positive; nitrites, positive; protein, positive; glucose, positive); urine culture (300,000 colonies/mL); and basic metabolic panel (blood urea nitrogen, 32 mg/dL; carbon dioxide, 37 mmol/L; creatinine, 2.1 mg/dL; serum chloride, 23 mmol/L; serum potassium, 6.3 mmol/L; serum sodium, 21 mmol/L).

Yet despite being informed by the patient about his condition, emergency room physicians did not seem to be familiar with uromycitisis or uromycitisis poisoning and instead administered conventional antibiotics, namely ciprofloxacin (500 mg PO q12hr), as if they were treating a patient with a severe/complicated urinary tract infection. This drug had no effect and did not alleviate any of the patient's intensifying symptoms, which came to include even more acute abdominal and lower back pain (Verbal Numerical Rating Scale, 9) and high fever (38.88 °C). After 12 hours, he was transferred to our institution.

At our institution, he was immediately diagnosed with uromycitisis poisoning and was given 1 g (every 8 hours for 2 days) of intravenous infused avibactam and ceftazidime: a next-generation, non-β lactam β-lactamase inhibitor and third-generation anti-pseudomonal cephalosporin antibiotic combination for the treatment of uromycitisis poisoning. After 2 days, the results of all urological tests had returned to normal ranges, and he was determined to have fully recovered. After 3 days, he was discharged and remains symptom free.

Discussion

Uromycitisis was first reported in 1975 by Steinbrenner and colleagues.[3] Despite being known about for more than four decades, its etiology is still poorly appreciated and understood, perhaps, at least partially, because uromycitisis sufferers are inextricably linked to the odious practice of public urination. Indeed, the psychological component of this condition cannot be discounted, as sufferers often feel shame due to their medical need to urinate whenever and wherever they feel the urge, lest they risk developing uromycitisis poisoning.[4,5,6] There is, however, a strong societal bias against such acts that must be balanced against the health and well-being of people with this condition.

We hereby propose the following: 1) Urologists and nephrologists especially, but also primary care providers and psychologists, must better educate themselves about uromycitisis and its signs and symptoms, to be able to provide optimum care for and exhibit the utmost sensitivity to patients with uromycitisis. 2) A national reciprocity program of public urination passes should be adopted, so that people with uromycitisis can be free to urinate, if medically necessary, wherever and whenever they need to and not be burdened legally (or, indeed, psychologically) by existing local or state laws and regulations against public urination. 3) Finally, a national campaign should be launched to educate the public about uromycitisis and the dangers of uromycitisis poisoning. Our institution—the Arthur Vandelay Urological Research Institute—is currently seeking federal and private grant funds to do just that.

Conflict of interest

The authors declare that they have no conflicts of interest.

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[3] Steinbrenner G, Fisk W, Merman FF, Peterman J, Bhatt B, Klompus J. Antibacterial drugs to treat acute renal failure: identification and discussion of "uromycitisis." *Lancet Urol.* 1975;8:211-220.
[4] Whatley T, Leo U, Nicodemo L, Berg A, Haffler E, Mandelbaum I. Psychological effects of uromycitisis. *Can J Ab Psychol*. 1994;76:878-896.
[5] Roydlick E, Chiles J, Bison D, Pennypacker HE, Corrochio E. "Don't blame the victim": uromycitisis in American life. *Am J Ab Behav Psychol*. 1996;45:434-442.
[6] Davola J, Mischke SE. "New public urination passes approved for uromycitisis sufferers." *New York Times*. May 20, 2014. A1, D12.