UIJ UroToday International Journal®

www.urotodayinternationaljournal.com
Volume 3 - February 2010

Renal Brucelloma in a Herniated Kidney

Jennifer Tseng, Brian D. Duty, Siamak Daneshmand
Division of Urology, Oregon Health and Science University, Portland, OR, USA
Submitted December 4, 2009 - Accepted for Publication January 10 2010

ABSTRACT

Brucella is a common zoonotic infection worldwide that can target many organs. Nonetheless, genitourinary involvement is uncommon, with renal abscess formation being exceptionally rare. The authors present a rare case with extensive renal involvement in a patient previously undiagnosed with brucellosis. The patient's kidney herniated through the femoral canal into the thigh. The breadth of disease found on imaging is dramatic in comparison to the patient's mild presentation of chronic, nonspecific symptoms.

KEYWORDS: Brucellosis; Hydronephrosis; Renal abscess.

CORRESPONDENCE: Siamak Daneshmand, MD. Section of Urologic Oncology, Oregon Health and Science University, 3303 SW Bond Ave, CH10U, Portland, OR 97239, USA (siadaneshmand@yahoo.com).

CITATION: *UroToday Int J.* 2010 Feb;3(1). doi:10.3834/uij.1944-5784.2010.02.11

INTRODUCTION

Brucella is a common zoonotic infection worldwide. It can target many organs. However, the genitourinary system is infrequently involved, with a renal abscess being an even more uncommon complication [1]. The patient in this case report presented with flank pain and was diagnosed with a massively dilated right kidney with herniation through the femoral canal into the thigh. The diagnostic procedures and surgical approach will be discussed.

CASE REPORT

A 41-year-old Hispanic male presented with a 2-month history of right upper quadrant abdominal pain. Review of systems revealed chronic urinary frequency and urgency, fevers, night sweats, malaise, and back pain. Although he denied contact with livestock, he regularly consumed unpasteurized Mexican dairy products. On physical examinatin, he was found to have a right-sided mass spanning from the upper abdomen to the superomedial aspect of his thigh.

Computed tomography (Figure 1a) revealed a massively hydronephrotic right kidney with parenchymal thinning, resulting in elevation of his liver into the chest and displacing his heart. The inferior aspect of the kidney was found to be herniating through the femoral canal into the thigh. Multiple stones were seen in the collecting system within the thigh (Figure 1b). There was moderate hydronephrosis and hydroureter of the contralateral kidney, but the renal parenchyma was considered to be normal on imaging. He was taken to the operating room and underwent a right nephrectomy via a thoracoabdominal incision. An inguinal incision was required to mobilize the inferior-most aspect of the kidney. Following removal of the kidney, the femoral hernia was repaired. Culture of the copious purulent material expressed during the operation grew *Brucella abortus*. He was discharged home after an uncomplicated postoperative 6-week course of doxycycline and rifampin. Further imaging was to be ordered as needed during ensuing visits if there were recurrent symptoms.

DISCUSSION

Brucellosis is considered the world's most common bacterial zoonosis [1]. *Brucella* species are facultative intracellular bacteria that enter the host through ingestion, inhalation, or contact with conjunctiva or skin abrasions [1]. Frequently, the mode of transmission entails ingestion of unpasteurized or unboiled dairy products [2]. There are 3 main species, including *B melitensis, B abortus,* and *B suis*, but the former 2 are the most common culprits of human disease [1].

Brucellosis can present with a wide variety of nonspecific symptoms. It targets many different organ systems, including

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case report

Figure 1a. Coronal CT Image Shows a Massively Hydronephrotic Right Kidney, Herniating (Arrow) Through the Femoral Canal Into the Thigh.

doi: 10.3834/uij.1944-5784.2010.02.11f1a

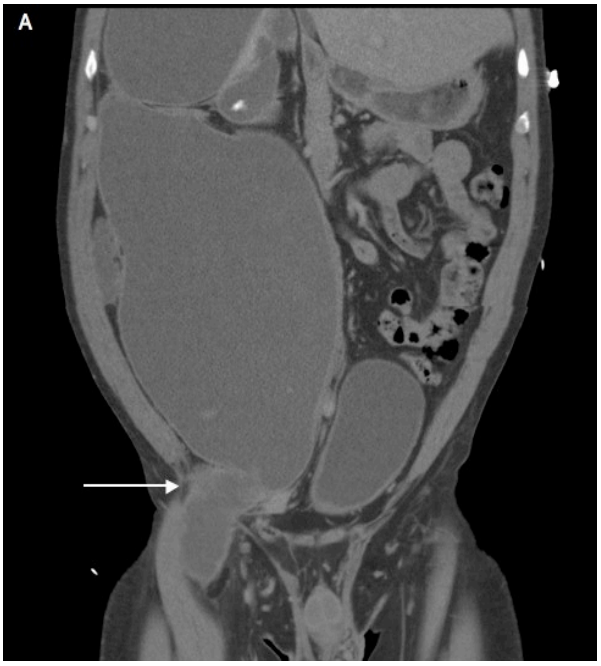

Figure 1b. Multiple Stones (Arrow) Are Seen in the Collecting System Within the Thigh.

doi: 10.3834/uij.1944-5784.2010.02.11f1b

the central and peripheral nervous systems as well as gastrointestinal, hepatobiliary, musculoskeletal, cardiovascular, integumentary, and genitourinary systems. Fever is the most common initial symptom, followed by osteoarticular pain and constitutional symptoms. Genitourinary involvement occurs in 10% of cases as epididymo-orchitis, glomerulonephritis, or renal abscess [1]. Patients can also present with renal failure secondary to tubulointerstitial nephritis, membranoproliferative glomerulonephritis, or nephritis associated with brucellar endocarditis [3].

Diagnosis is primarily made by cultures, with blood cultures being the gold standard. *Brucella* may also be isolated from pus, tissue samples, cerebrospinal fluid (CSF), or pleural, joint, and ascitic fluids. Agglutination tests such as the rose bengal test, serum agglutination test, and the antiglobulin or Coombs' test can also be used for diagnosis. The enzyme-linked immunosorbent assay (ELISA), polymerase chain reaction (PCR), western blot, or more point of care immunassays are also being utilized as second-line laboratory methods [1,4]. Treatment based on World Health Organization (WHO) guidelines is a combination regimen of 200 mg doxycycline and 600–900 mg rifampicin daily for a minimum of 6 weeks [3]. Alternatives to rifampicin include ciprofloxacin, cotrimoxazole, or streptomycin. With a renal abscess, surgical treatment is mandatory for cure in combination with the previously described antibiotic therapy [4]. Follow-up typically is necessitated with continuing or new symptoms of disease.

There are very few case reports of renal brucellomas in the literature [5-9]. Most have been published in the Spanish medical literature because it is primarily a zoonotic disease seen in developing countries [5]. A few Spanish case reports have described patients presenting with renal masses found on imaging studies and diagnosed similarly by culture [6,7]. The lone other case described in English literature concerned a patient previously diagnosed with brucellosis who had a renal abscess that was discovered on follow-up [5].

This case is a truly unique presentation of renal brucellosis, given the extensiveness of renal disease in a patient previously undiagnosed with brucelloma. The breadth of disease found on imaging is dramatic in comparison to the patient's mild presentation of chronic, nonspecific symptoms. For patients originally from developing countries, inquiries should be made into their contact with livestock or ingestion of dairy products if there is a concerning finding on imaging. Brucellosis is known as one of the "great imitators" [1]. There should be a clinical suspicion for an infectious etiology in the setting of a renal mass of uncertain etiology. Prior literature concerning systemic

brucellosis has not specifically mentioned an incidence rate of disease involving the contralateral kidney. Given the lack of data pertaining to involvement of the contralateral kidney, follow-up of renal function by laboratory tests and possibly imaging may be warranted based on new or recurring symptoms and signs. Although a rarely seen infection in industrialized nations, brucellosis is not an uncommon disease worldwide. Therefore, given the increasing ease of international travel, the incidence within the United States is likely to increase. A higher index of suspicion is likely to be needed by clinicians. When presented with pathology of uncertain origin similar to that described in this case report, further elicitation of social history concerning travel and dietary habits may be of clinical significance. This case report also demonstrated the importance of interdisciplinary cooperation of multiple specialties (eg, radiology, infectious diseases, primary care) in the early detection, treatment, and follow-up of zoonotic diseases of urologic concern.

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doi:10.3834/uij.1944-5784.2010.02.11
ISSN 1944-5792 (print), ISSN 1944-5784 (online)