

# Tale of Two: A 'case report' of two giant urinary bladder stones and recurrent anemia in a 78-year-old Filipino male

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## Abstract

**Background:** This is a rare case of two large urinary bladder stones causing severe infection of the urinary tract affecting the bone marrow due to chronic immune stimulation in a patient with recurrent anemia. Urinary bladder calculi are hard masses of minerals. They develop when the minerals in concentrated urine crystallize. This often happens when the bladder cannot be emptied. Signs and symptoms can vary from severe abdominal pain to blood in the urine. Sometimes, bladder stones don't cause any symptoms. If left untreated, bladder stones may lead to infections and other complications such as hepatic abscess via a hematogenous route.

**Case:** This is a case of a seventy-eight-year-old man with a history of multiple blood transfusions secondary to anemia of unknown cause. He came into our institution for a second opinion. We worked up the patient, which showed hepatic abscess and two large urinary bladder calculi. Further investigation of the anemia later led to a diagnosis of primary myelofibrosis.

**Diagnostics:** Ultrasound showed a complex mass on the left hepatic lobe measuring 7.5 cm x 6.0 cm x 2.1 cm consistent with a hepatic abscess. The culture of the abscess was positive for *E. coli*. Computed Tomography (CT) scan of the lower abdomen showed heterogeneous mass measuring 8.6 cm x 8.7 cm x 9.2 cm within the urinary bladder (see Figure 2). Urinalysis was consistent with a urinary tract infection. Urine culture showed *E. coli*. Video-assisted cystoscopy showed two urinary bladder calculi, measuring 1.5 cm x 3.2 cm x 4.2 cm weighing 30 grams each (see Figure 3). The calculi were composed of 100% Calcium Oxalate. He underwent a series of diagnostic examinations for anemia including gastroscopy to rule out a bleeding ulcer. Complete blood count showed hemoglobin of 77 g/L and a hematocrit of 0.23. Finally, bone marrow core biopsy was done which is consistent with primary myelofibrosis.

**Conclusion:** Urinary bladder stones can be asymptomatic and may present only with vague abdominal pain. It should be one of the considerations in asymptomatic patients with long-standing prostatitis or benign prostatic hyperplasia. Detailed history, thorough physical examinations, and cautious diagnostic tests are mandatory to confirm the diagnosis. A hepatic abscess may arise from infections in the urinary tract such as prostatitis through hematogenous extension. Therefore, it is important to address the origin of the infection to prevent such complications. This is a rare case of an elderly man who presented with chronic anemia and later found out to have large urinary bladder stones that caused severe infection leading to immune stimulation of the bone marrow, hence the diagnosis of primary myelofibrosis by bone marrow biopsy. Such a rare case must be thought of holistically and analytically.

**Keywords:** Anemia, urinary bladder calculi, hepatic abscess, benign prostatic hyperplasia, prostatitis

## Introduction

We present a case of a 78-year-old male, with an 8-month history of unexplained anemia treated by repetitive blood

transfusions. He sought consultation in our institution for a second opinion. Upon admission, a workup for the source of anemia such as complete blood count, occult blood in the stool, and urinalysis to look for the presence of hematuria and ultrasound of the whole abdomen were done. An abdominal sonogram showed an incidental finding of hepatic abscess. CT scan of the whole abdomen showed two huge urinary bladder calculi, each measuring 1.5 cm x 3.2 cm x 4.2 cm. It was found out that the patient

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had cystitis with concomitant prostatitis and benign prostatic hyperplasia. Urine culture was positive for *E. coli*. The hepatic abscess was also positive for *E. coli*, which is believed to be secondary from bacterial seeding from the urinary bladder.

In this report, we describe the first case in the literature of myelofibrosis that is caused by prolonged infection (urinary tract infection/prostatitis), presenting with urinary bladder stones.

### Case Report

This is a case of a 78-year-old man, known hypertensive, with a history of multiple blood transfusions secondary to anemia of unknown cause. He came into our institution for a second opinion. History started 8 months before the consult when the patient started to have vague abdominal pain, located on the hypogastric area, intermittent, spontaneously resolves without accompanying signs and symptoms. He sought consult at a local hospital where he was admitted for a full workup, however, an incidental finding of anemia on CBC struck his doctors, and was advised blood transfusion with packed RBC and a bone marrow biopsy. The patient initially waived the recommendation and went home. During the interim, the patient's abdominal pain disappeared until two months before the consult, he had an intermittent recurrence of hypogastric pain now associated with generalized body weakness and pallor. He was transfused with 4 units of PRBC and underwent endoscopy, which only showed esophageal diverticulum. One month before the consult, the patient had hypotensive episodes associated with pallor and generalized body weakness, with noted recurrence of anemia managed with transfusion of 4 units packed RBC. The patient was then admitted to our institution for a second opinion on the cause of the anemia. Upon admission, work up showed incidental finding of a hepatic abscess on ultrasound. Ultrasound-guided percutaneous aspiration of complex abscess of the anterior left lobe of the liver was done. The culture of the abscess showed *Escherichia coli* (ESBL positive). Pigtail insertion was done for continuous drainage of an abscess. Cefoxitin 2 grams intravenously every eight hours was started based on culture results. Urinalysis showed a WBC count of 41/hpf and leukocytes of +3. Urine culture was also positive for *E. coli*. Computed Tomography (CT) scan of the lower abdomen showed heterogeneous mass measuring 8.6 cm x 8.7 cm x 9.2 cm within the urinary bladder. During the patient's hospital stay, he developed hematuria hence video-assisted cystourethroscopy, open cystolithotomy, and transurethral resection of the prostate (TURP) were done. Intraoperatively, there were two urinary bladder calculi, each measuring 1.5 cm x 3.2 cm x 4.2 cm weighing 30 grams each. Hematogenous bacterial seeding from the

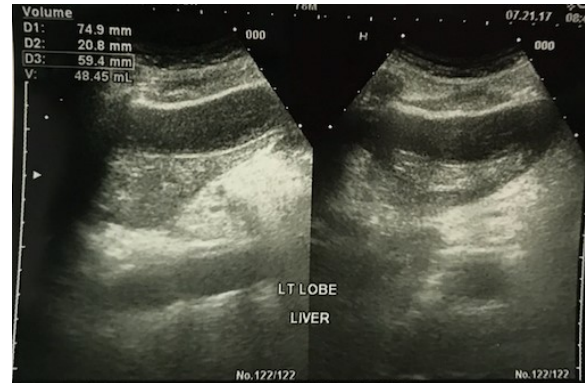


Figure 1. Ultrasound showed a complex mass on the left hepatic lobe measuring 7.5 cm x 6.0 cm x 2.1 cm consistent with a hepatic abscess



Figure 2. CT scan of the lower abdomen showing heterogenous mass measuring 8.6 cm x 8.7 cm x 9.2 cm within the urinary bladder



Figure 3. Two urinary bladder calculi each measuring 1.5 cm x 3.2 cm x 4.2 cm weighing 30 grams each.

urinary tract probably brought about a patient's liver abscess. The two urinary bladder calculi may be caused by chronic urinary retention due to bladder outlet obstruction caused by prostatic hyperplasia. The patient's hemoglobin levels were still labile despite blood transfusion. A repeat endoscopy was done, revealing multiple healing gastric ulcers that were not initially seen during the first endoscopy done in another institution. This was managed medically. However, anemia still recurred, which prompted a Hematology referral and subsequent bone marrow biopsy. The biopsy results revealed myelofibrosis, which may explain the recurrent anemia despite all interventions.

## Discussion

A urinary bladder stone is one of the most common urolithiasis in males more than 50 years of age. It has been proposed that the incidence of bladder calculi is primarily associated with physiologic and/or anatomic bladder disorders ranging from congenital or acquired bladder outlet obstruction, bladder augmentation, bladder diverticula, urinary tract infection, and even neurogenic bladder.<sup>3</sup> Bladder outlet obstruction (BOO) associated with prostate hyperplasia can cause stone formation via stasis, which could act as the nidus, especially when there is significant residual post-void urine.<sup>4</sup> This can be explained by the deposition of small crystals in the urine, which leads to saturation, which eventually leads to crystallization and stone formation.<sup>5,10</sup>

On admission, the patient's urinalysis showed pyuria with concomitant hepatic abscess seen on abdominal ultrasonography. It has been postulated that infections from other organs of the body may cause hematogenous seeding into the liver since it receives blood from both systemic and portal circulations. The urinary bladder is susceptible to infections because of high exposure to bacteria. The presence of infection in organs in the portal bed can result in localized septic thrombophlebitis which will subsequently lead to liver abscess. These abscesses initially are multiple but usually coalesce into a solitary or single lesion. Abscess formation can also be due to the hematogenous extension of organisms due to bacteremia. The right hepatic lobe is affected more often than the left hepatic lobe which can be attributed to anatomic considerations. The right hepatic lobe receives blood from both the superior mesenteric and portal veins, whereas the left hepatic lobe receives inferior mesenteric and splenic drainage.<sup>6</sup> The venous return of the urinary bladder is a rich network of vessels. The vast majority of venous return from the bladder drains into the internal iliac vein which in turn drains into the common iliac vein. Direct communication between the internal iliac vein and the inferior mesenteric vein may arise if there is an abnormal formation of collateral vessels. This may explain

the development of a liver abscess in the setting of chronic urinary tract infection and prostatitis in this patient.<sup>7,11</sup>

The anemia of our patients may be seen as a separate disease entity. Anemia was initially thought to be secondary to the chronic inflammation brought by abscess and urinary tract infection (UTI) or prostatitis. An esophagoduodenoscopy was done as well, which revealed multiple healing gastric ulcers that were managed medically. However, the recurrence of the anemia despite all these interventions led to work-up for a primary hematologic disorder, which turned out to be myelofibrosis.

The patient's recurrent anemia can also be attributed to a chronic infection. Chronic inflammation is considered of major importance in the development of certain hematologic disorders. It is also a potential initiating event and a driver of clonal evolution in myelodysplastic syndromes.<sup>9</sup> Sustained immune stimulation from chronic inflammation could precipitate clonal evolution and may catalyze the clone from the early disease stage of myelofibrosis toward the advanced stage.<sup>8</sup> We, therefore, believe that the myelofibrosis may be associated with the chronic urinary bladder infection. This patient also presented with a liver abscess, which is more likely related to the urinary tract infection which both yielded *E. coli* by culture study.

The clinical presentation of myelofibrosis classically includes anemia, splenomegaly, and constitutional symptoms such as weight loss, fever, and night sweats. Our patient presented mainly with recurrent anemia which is one of the main symptoms among Filipino patients.<sup>9</sup>

## Conclusion

Urinary bladder calculi can be asymptomatic and may present only with vague abdominal pain. Therefore, urinary bladder stones should be one of the considerations in asymptomatic patients with prostatitis or benign prostatic hyperplasia. Detailed history, thorough physical examinations, and cautious diagnostic tests are mandatory to confirm the diagnosis. A hepatic abscess may arise from infections in the urinary tract through hematogenous extension. It is important to address the origin of the infection to prevent such complications. Anemia should be approached by exhausting all possible secondary causes (in this case, a chronic infection and occult GIT bleeding), before considering a primary hematologic disorder. Chronic inflammation of the urinary tract, on the other hand, led to the diagnosis of primary myelofibrosis due to sustained immune stimulation.<sup>8</sup> To our knowledge, this is the first case of a Filipino patient who developed bladder stones this size with associated hepatic abscess and myelofibrosis.

### Disclosure of Conflict of Interest

The case reported in this publication is supported by the Department of Internal Medicine, Capitol Medical Center. The authors whose names are written above certify that she/he has no affiliation with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies or other equity of interest), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript. The documentation of informed consent has been waived and has been reviewed and approved by the Institutional Review Board (IRB) in accordance with its policy on objectivity in research.

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