Bilateral ureteral obstruction caused by vaginal foreign body: a case report

Jay Heintz, MD, Judd Chason, MD, Andrew Kramer, MD
Division of Urology, Department of Surgery, The University of Maryland School of Medicine, Baltimore, Maryland, USA

HEINTZ J, CHASON J, KRAMER A. Bilateral ureteral obstruction caused by vaginal foreign body: a case report. The Canadian Journal of Urology. 2009;16(5):4870-4872.

Purpose: *We present a case of a large, vaginal calculus which eroded into the bladder ultimately causing bilateral ureteral obstruction and acute renal failure.*
Materials and methods: *A 34-year-old female presented with dysuria and urinary hesitancy. The diagnosis, workup, and treatment are outlined.*
Results: *Consistent with radiographic findings, the stone was a primary vaginal stone which eroded into the bladder, the nidus of the stone being a vaginal foreign body. This vaginal stone, by eroding into the bladder, caused bilateral ureteral obstruction and renal failure.*
Conclusion: *A vaginal foreign body can grow so large that it can erode into the bladder and obstruct both ureters. This stone can be treated purely endoscopically, but a later fistula repair was required in this case. Recognizing this entity and instituting the appropriate treatment may enable this to be promptly managed with minimal patient morbidity.*

Key Words: vaginal lithiasis, vesicovaginal fistula, vaginal stone, primary, secondary, calculus

Introduction

The earliest reported case of a vaginal stone was in 1900, where a calculus formed in a vaginal cystocele.[1] Vaginal stones, though exceedingly rare, are further classified into primary and secondary stones. Most primary stones are a result of the deposition of urinary salts in the vagina.[2] Common reported etiologies of this entity stem from vesicovaginal or urethrovaginal fistulae, vaginal outlet obstruction, or incontinence secondary to a neurogenic bladder.[3] These primary vaginal calculi have also been associated with ectopic ureters and meningomyeloceles.[4] Conversely, secondary vaginal stones are formed from a foreign body nidus, and are the result of crystallization of urinary constituents around this object.[5] Various foreign bodies have been described including intrauterine contraceptive devices[6] and hairspray container lids.[7] The resulting stones, if large enough, can lead to vesicovaginal fistulae as it did in our case.

Accepted for publication June 2009

Address correspondence to Dr. Andrew C. Kramer, University of Maryland Medical Center, 22 S. Greene Street, 8SD-18, Baltimore, MD 21201 USA

Case report

A 34-year-old female presented to the emergency department with dysuria and urinary hesitancy. She had no significant gynecologic or urologic history, and denied any prior surgeries. Laboratory analysis demonstrated that her creatinine was elevated to 4 mg/dl. CT scan revealed a large pelvic calcification, bilateral hydroureteronephrosis, and concern for pyelonephritis, Figure 1. The initial thought based on the CT scan pointed toward this being a large bladder calculus, given the hydronephrosis. Pelvic exam showed a large stone visible at the introitus, which was immobile and tender to manipulation.

Her CT scan was reviewed, but the precise origin and location of the stone were unclear on CT, so MRI was done as well. Sagittal sections revealed the stone to be arising originally from the vagina, and causing a large vesicovaginal fistula, with a rectangular center. This suggested a foreign body as the etiology. This was proved to be consistent with the earlier CT findings, Figure 2.

She was brought to the operating room for definitive management. Cystoscopy allowed us to visualize the large calcification eroding into the bladder proximal to the trigone. On vaginal exam the stone was palpable just within the introitus, therefore, initially a rigid cystoscope and a 1000 micron holmium laser were utilized to fragement the stone, Figure 3. The stone's size demanded even larger instrumentation,, so next

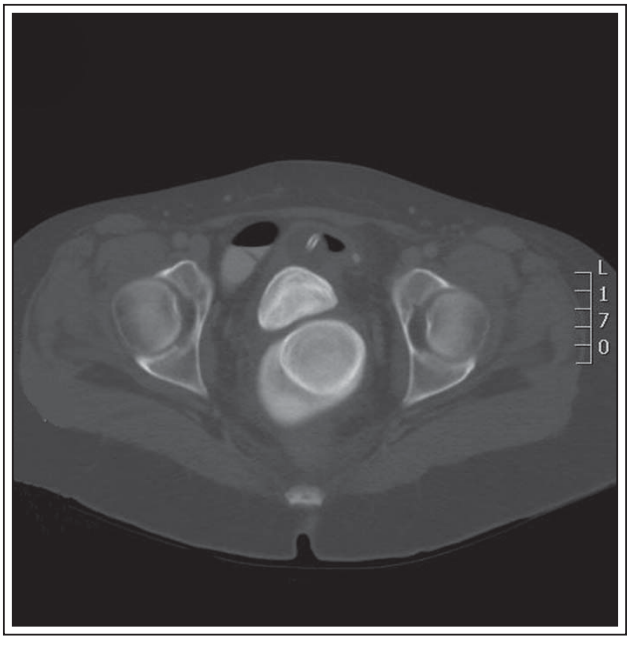

Figure 1. CT scan with large pelvic/vaginal stone.

Figure 2. MRI showing nidus of stone marked by arrow.

an ultrasonic lithotriptor was inserted through a nephroscope and was introduced transvaginally to address the remainder of the stone. At the center of the calculus there was a plastic bottle top, like that of a shampoo cap, Figure 4. The remainder of the stone was removed and the vagina was copiously irrigated. This process took greater than 3 hours to remove the large burden of stone. The vaginal mucosa had a very friable, inflamed appearance, so the vesicovaginal fistula repair was postponed at the advice of a gynecologist.

Figure 3. Holmium laser fragmentation of stone.

Figure 4. Foreign body with stone fully extracted.

The patient had an uneventful postoperative course. Her creatinine returned to 1.0 mg/dl on her first postop day, and she was discharged the following day. We were unable to elicit any details from the patient regarding the length of time the foreign body had been in place. Six weeks later the fistula was repaired transvaginally.

Discussion

There have been numerous reports in the literature of both primary and secondary vaginal stones, all having specific etiologies. Several examples in the literature describe primary vaginal calculi. In 1946, Dexeus reported a vaginal calculus developing after traumatic amputation of the distal urethra and narrowing of the vaginal introitus.[1] Youngblood, in 1953, reported a vaginal stone in a child with urinary incontinence secondary to a neurogenic bladder.[3] More recently Lin et al described the case of a woman with cerebral palsy and urinary incontinence with a large vaginal stone. The etiology of the stone was thought to be urinary stasis and long term recumbent position.[8] Bar-Moshe et al reported a case of large vaginal stone as the result of congenital vaginal outlet obstruction.[9] There have been multiple reports of vaginal stones due to congenital vesicovaginal fistulae or the result of iatrogenic injury during hysterectomy.[10]

Secondary vaginal calculi are more rare than primary ones. Beedham, in 2001, reported a 63-year-old with a large vaginal stone resulting from a retained intrauterine contraceptive device.[6] In 2005, Rogenhofer et al described a case of an aerosol cap that caused a vaginal calculus which resulted in a rectovaginal fistula.[11]

Traditionally these stones had been managed with open removal (or by vaginal forceps removal if feasible) and repair of vesicovaginal fistula, but there have been recent reports of endoscopic management. Patankar at al, in 2006, reported the removal of a secondary vaginal stone which formed around a retained gauze. Both the stone removal and the vesicovaginal fistula repair were managed endoscopically, in a similar manner as our patient was managed.[12]

To our knowledge, this is the first case reported where a vaginal stone forming around a foreign body erodes in the bladder causing bilateral ureteral obstruction, and is subsequently managed solely endoscopically by a urologist.

We feel our endoscopic approach for removal of the stone was both safe and effective, and the delayed repair of the vesicovaginal fistula was necessary secondary to the inflammation caused by the large, chronic vaginal calculus. □

References

1. Al-Attar AS. Vaginal Stones. *Int Surg* 1966;45:51.
2. Ho TC, Lin IL. Primary vaginal stone in a young active woman. *Taiwan J Obstet Gynecol* 2008;47(4):457-459.
3. Youngblood VH. Vaginal urinary stone. *J Urol* 1953;69(3): 433-435.
4. Ragaviah NV, Devai AI. Primary vaginal stones. *J Urol* 1980;123(5):771-772.
5. Cetinkursun S, Surer I, Demirbag S, Ozturk H. A primary vaginal stone in a disabled child. *Obstet Gynecol* 2001;98 (5 Pt 2):978-979.
6. Beedham T, Rao K. Giant vaginal stone with embedded contraceptive device. *J R Soc Med* 2001;94(10):522-523.
7. Hanai T, Miyatake R, Kato Y, Iguchi M. Vesicovaginal fistula due to a vaginal foreign body: a case report. *Hinyokika Kiyo* 2000;46(2):141-143.
8. Lin B, Huang X, Lu J, Zhang Z, Wang P, Huang Z. Vaginal calculi secondary to urethrovaginal fistula with vaginal stenosis in a 14-year-old girl. *Urol Res* 2008;36(1):73-75.
9. Bar-Moshe O, Oboy G, Assi J. Vaginal calculi in a young woman. *Eur Urol* 2000;37(4):505-507.
10. Barbagli G, Selli C, Masini G, Carini M, Lenzi R. Vaginal calculi associated with vesicovaginal fistulae. *Ital J Surg Sci* 1985;15(1):85-88.
11. Rogenhofer K, Scharl A, Spath G, Englebrecht V. Vaginal foreign body - cause for a rectovaginal fistula. *Zentralbl Gynakol* 2005;127(2):96-98.
12. Pantankar S, Dobhada S, Bhansali M. Vesicovaginal fistula with secondary vaginal stones. *J Laparoendosc Adv Surg Tech A* 2006;16(4):386-389.