

# *Renal insufficiency secondary to delayed presentation of a retained foreign body*

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*We present the first report to our knowledge of progressive renal failure secondary to a retained intravesical foreign body. The urologic management of intravesical foreign bodies is challenging and is often complicated by a delay in presentation. Introduction into the bladder may be through*

*a variety of means, including self insertion such as in this case. Extraction should be tailored according to the nature of the foreign body and should minimize bladder and urethral trauma. We report an unusual case of a 10 year delay in presentation after the insertion of two large intravesical foreign bodies manifesting as progressive renal failure and worsening lower urinary tract symptoms.*

**Key Words:** foreign body, bladder, perforation, open cystotomy

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## Case

A 63-year-old male with past medical history significant only for hypertension presented to the emergency room with 1 week of worsening dysuria,

urgency, frequency, and abdominal pain. His baseline voiding symptoms included low volume urinary frequency, occasional dribbling, and recurrent urinary tract infections. He reported that his urine had been foul smelling for several years.

At presentation, the patient was afebrile with normal vital signs. Physical examination was notable for a benign abdomen with no palpable abdominal masses. He did complain of mild suprapubic discomfort upon palpation. Pertinent laboratory values included a white blood cell count of 15,000 with 71% neutrophils

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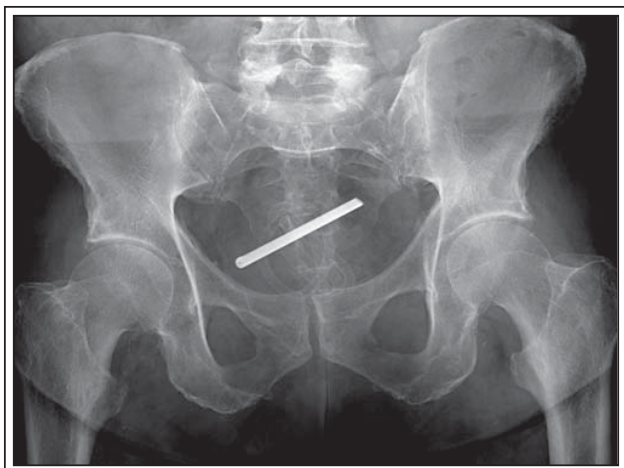
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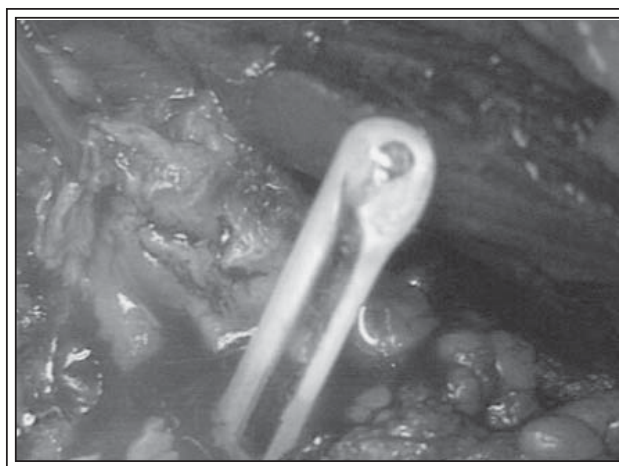
and a creatinine of 3.1 mg/dl. Although his baseline creatinine was not known, the patient denied any history of renal dysfunction. A clean catch urine culture grew group B beta hemolytic streptococcus, and appropriate antibiotic therapy was initiated. Ultrasound of the kidneys and bladder demonstrated moderate bilateral hydronephrosis and a partially distended bladder containing a linear echogenic object, which resembled a glass tube. Separate shadowing material was noted adherent to the posterior bladder wall, which was interpreted as encrusted debris. A subsequent abdominal radiograph confirmed an 8 cm radio opaque linear foreign body in the pelvis and fainter tracings of a convoluted tube like structure, Figure 1.

Upon further questioning, the patient admitted to having inserted a thermometer into his urethra for sexual stimulation approximately 10 years previously. By his account, the glass thermometer had broken off in his urethra and he had then inserted a length of rubber tubing in an unsuccessful attempt to remove the retained glass rod. He further admitted that he had been evaluated by a urologist 4 years prior to his presentation. At that time, the foreign bodies were observed cystoscopically and were felt to be too encrusted for endoscopic removal. Open surgical management was recommended. The patient, however, failed to pursue further intervention. Despite persistent, severe lower urinary tract symptoms, he avoided medical care until his condition became intolerable.

The patient was given antibiotics and taken promptly to the operating suite for exploration of the pelvis and open cystotomy. Upon entering the pelvis, dense perivesical induration and inflammation



**Figure 1.** Plain radiograph of the abdomen demonstrating opacities overlying the bladder.



**Figure 2.** A glass rod protruding from the anterior wall of the bladder at surgical exploration. Note the thick fibrous capsule in which it had been encased, and the absence of purulent material or urine extravasation.

were encountered. Meticulous dissection uncovered one end of the glass rod protruding 75% from the anterior bladder, and contained within a thick fibrous pseudocapsule, Figure 2. The bladder perforation appeared to be completely walled off, explaining why the patient was never acutely ill. Although the surrounding tissue was inflamed and adherent, no purulence or urine was observed. The bladder was then opened and inspected. Fifty centimeters of stiff rubber tubing essentially filled the bladder space, Figure 3. Following extraction of all foreign material, mucosal biopsies were taken and the bladder was closed in two layers. A pelvic drain and Foley catheter were left in place.



**Figure 3.** A 30 cm coil of stiff rubber tubing extracted from the bladder.

The patient's postoperative course was uneventful. Although he was scheduled for a cystogram prior to removal of his catheter, he refused this procedure. The catheter was removed in the office on postoperative day 20 without incident, and the patient voided promptly to completion. His repeat serum creatinine had improved to 2.1 mg/dl. In a subsequent communication, the patient reported marked improvement in his lower urinary tract symptoms. The final pathology of the bladder tissue was acute and chronic inflammation with no evidence of malignancy. An outpatient psychiatric consultation was arranged, but the patient has not yet presented for evaluation.

## Discussion

The first report of insertion of a foreign body into the penile urethra was published in 1755 by Gauthier,<sup>1</sup> and it is now a well recognized urologic and psychiatric phenomenon. Documented motives include autoerotic stimulation, psychiatric disorder, drug intoxication or childhood curiosity.<sup>2,3</sup> Alibadi et al evaluated 18 patients whose reasons for self-inserting foreign bodies included aid in voiding (39%), auto eroticism (33%), psychiatric (11%), and no definite reason (17%).<sup>4</sup> Other than self insertion, foreign bodies can appear in the bladder from iatrogenic causes and migration from other organs.<sup>5,6</sup> The list of foreign bodies inserted into the urethra is lengthy and includes such items as light bulbs, razor handles, pens, screws, wires, tubing, live worms and snakes.<sup>2</sup> Recommendation for psychiatric referral in all patients is controversial, as many individuals do not have identifiable psychopathology.<sup>7</sup> However, an initial psychiatric evaluation is indicated to identify and treat underlying mental disorders and avoid repeat episodes with long term sequelae.<sup>8</sup>

Clinical complications of retained foreign bodies are related to infection, encrustation, calcification or urethral obstruction, resulting in perforation, fistulae, strictures, priapism, scrotal gangrene, or squamous-cell carcinoma.<sup>2,3,8</sup> Bladder perforation from a foreign body has been reported.<sup>9,10</sup> Tornero et al reported a case in which a surgical sponge from 6 years prior had gradually migrated into the bladder, causing progressively worsening abdominal pain over the course of months.<sup>9</sup> Loeser et al described a case of bladder perforation following the self insertion of a pencil in which a 14-year-old girl presented with pyelonephritis.<sup>10</sup> As in our experience, these cases of bladder perforation did not manifest acutely.

Foreign bodies have mimicked nephritis and have caused acute urinary retention.<sup>11,12</sup> To our knowledge, chronic renal failure as a result of foreign body insertion has not been described.

Diagnosis of a retained foreign body in the lower urinary tract may not be initially obvious. As in our case, it is common for patients to ignore their situation for a variety of reasons. Embarrassment, anxiety and denial may significantly delay appropriate workup until an individual is overtly symptomatic.<sup>10,13</sup> Presenting symptoms may include dysuria, frequency, lower abdominal and urethral pain, painful erection, hematuria, urethral discharge, or fever.<sup>14</sup> Detailed history and physical examination may suggest the presence of a foreign object, which can be confirmed by office cystoscopy. Plain abdominal films or ultrasound will identify and localize foreign objects. Intravenous urography, retrograde cystography, and computed tomography (CT) are indicated when there is concern of possible perforation or injury to adjacent organs.<sup>10</sup>

Transurethral endoscopic extraction should be attempted when possible. This initial approach may also provide additional information regarding the overall appearance and capacity of the bladder and rule out more significant pathology. Open surgery, however, is necessary for large, lacerating, or heavily encrusted objects or when significant inflammation is present.<sup>15</sup> In cases of concomitant bladder perforation or injury to adjacent organs, open cystotomy is the preferred approach.<sup>3,10</sup>

In the current case, due to the large size of the objects, their location on imaging, and the known history of significant encrustation, the decision was made to proceed with open surgical intervention. Even with an open cystotomy, it was challenging to remove these objects due to inflammatory overgrowth and adherence of the bladder mucosa. The extravescical glass rod was encased in a thickened, fibrous pseudocapsule, suggesting that the bladder perforation had occurred in the distant past, and subsequently walled itself off. The consequence of the retained objects was chronic inflammation leading to hyperactivity, poor compliance and decreased bladder capacity. The compromised volume of the less distensible bladder likely resulted in higher resting and voiding bladder pressures contributing to this patient's worsening renal function. The improvement of renal function following surgery suggests an obstructive component as well, perhaps due to chronic mucosal inflammation.

The diagnosis of foreign body insertion can be challenging due to patient delay in presentation. However, our case illustrates that an intravesical foreign body should be considered in the differential diagnosis of unexplained renal insufficiency or lower urinary tract symptoms, of even very long duration. □

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## EDITORIAL COMMENT

The authors present a case of progressive renal failure secondary to a retained intravesical foreign body. This is a well recognized urologic condition. Oftentimes, patients have a diagnosed psychiatric disorder while in others, the psychiatric disorder is not recognized by the treating urologist. Therefore, all patients who present with a similar complaint should have a complete psychiatric evaluation after their urologic condition is treated. Unfortunately, in our experience, these patients do not follow up after initial urologic management, and therefore, do not receive treatment for the underlying psychiatric condition. It is believed that treatment of the underlying psychiatric disorder may prevent repeat episodes and the resultant long term sequelae of such acts. Finally, this case illustrates that the diagnosis can be challenging due to delay in patient presentation. Thus, the importance of a complete medical and urologic history, physical examination and diagnostic testing cannot be underscored.

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