

# Removal of bladder stone with metal wire infrastructure

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*There are reports of a wide variety of foreign materials, placed purposefully or inadvertently, that have been found in the lower urinary tract. Due to encrustation, some of these objects may initially appear to be simple stones. A careful evaluation with an appropriate index*

*of suspicion is needed to aid in the determination of whether one of these complex structures may be present. A determination of the composition of the structure will allow the surgeon to employ the most safe and expeditious means of removal. We report a case of a large bladder stone with a metal wire infrastructure that was removed by open cystolithotomy.*

**Key Words:** bladder, foreign body, cystolithotomy

### Case report

A 25-year-old male presented with a complaint of recent dysuria and hematuria. He had a past medical history significant for depression, sexually transmitted disease, and urinary tract infections. He also reported that at the age of fourteen he had begun placing foreign objects in his urethra on a daily basis. He recalled inserting a copper wire with black insulation over it into his urethra as a method of "urethral masturbation." For some time he had visualized part of the wire at the tip of his meatus, but could not recall whether or not it was removed. He stated that it was possible that this object was still in his urethra. His

physical examination was unremarkable; the bladder was not palpable, his external genitalia were normal, no objects could be palpated within the urethra, and no foreign material was seen at the penile meatus.

Flexible cystoscopy demonstrated a normal anterior urethra with no evidence of strictures. The appearance of the prostate and the region of the trigone were slightly erythematous. The bladder contained a very large yellow-colored stone. The bladder wall had mild trabeculation.

Plain film radiography of the kidneys, ureters, and bladder demonstrated this large and dense bladder calculus having a coiled wire within it (Figure 1). The patient was counseled, and treatment options were discussed. Due to stone size, density, and the foreign body within it, the patient was informed that open removal would be the most expedient treatment for this stone. Preoperatively the patient was given trimethoprim/sulfamethoxazole as suppressive antibiotic therapy.

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**Figure 1.** Bladder calculus having a coiled wire within it.



**Figure 2.** Cross section of the specimen demonstrated a laminated stone with a central core of metal wire.

After routine preoperative evaluation, open cystolithotomy was performed. The patient tolerated the procedure well and recovered uneventfully. Cross section of the specimen demonstrated a laminated stone with a central core of metal wire (Figure 2). The patient experienced no further urinary symptoms.

### Discussion

The literature is replete with a wide array of materials that have purposefully or inadvertently ended up within the bladder through a variety of mechanisms including self insertion, iatrogenic introduction, and migration from other areas within the body. In a recent literature review Van Ophoven and DeKernion<sup>1</sup> give a very thorough

summary of such items. As noted in this extensive review, it is impressive that many of these objects inserted transurethrally not only traverse the entire length of the male urethra (20 cm-25 cm), but apparently do so without evidence of injury. How this is so is not fully understood.

Today, many of these objects are safely removed by endoscopic means. Larger objects may be removed by a percutaneous route. Open surgery has also been employed for large, impacted, lacerating, and heavily encrusted objects.

In the case we present, the patient's urethra was without evidence of injury after passage of a wire coil. Of interest, the stone formation in this circumstance was quite heavy and dense. Stone analysis revealed a composition of calcium phosphate. This stone, with an internal metal framework, may be likened to that of a modern day construction of a building. Transurethral removal is unlikely to be a good option in this case, as intracorporeal lithotripsy with concomitant removal of the stone debris and wire material would likely be very time consuming, if even feasible, and have significant risk of causing urethral/bladder injury. Niendorf et al<sup>2</sup> reported on a similarly formed large bladder stone, in which case the patient also had admitted to previous masturbation with a solder wire at a younger age. This wire and stone construction was removed transvesically. In this

case we present suprapubic cystotomy with removal of the wire/stone construction which resulted in expeditious treatment with minimal morbidity for the patient. Such patients may also need to undergo psychiatric counseling to address and possibly prevent their destructive sexual practices. □

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#### References

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