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CASE REPORT

Foreign body in the urinary bladder causing persistent cystitis

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Summary An unusual cause of a urinary tract infection (UTI) that presented in a woman who had previously undergone anti-incontinence sling surgery is presented here. A urinary bladder stone had formed on an eroded, nonabsorbable suture that had been used in the previous operation. Before identifying the underlying cause, the patient suffered from lower urinary tract symptoms and had undergone a prolonged course of antibiotic therapy for 3 years. Following removal of the suture, the UTI symptoms were rapidly resolved and only a short course of antibiotics was needed after the operation.

1. Introduction

Urinary tract infections (UTIs) are common among females, many of whom will experience recurrence. Most uncomplicated UTIs can be uneventfully treated with a short course of empiric antibiotics; however, when recurrent and intractable UTIs are encountered, special precautions should be taken. Past medical or surgical histories are invaluable and should be recorded and evaluated in detail. Identifying the true underlying cause is key for successful UTI management and obviates the use of prolonged, and often unnecessary, courses of antibiotics.

2. Case report

A 59-year-old female patient presented with a 3-year history of recurrent and symptomatic UTIs. She had been receiving antibiotics at a local clinic during this time. Unfortunately, dysuria and lower abdominal soreness were not resolved by this treatment and her symptoms continued to bother her. Because of her continued symptoms, she visited our urology outpatient department (OPD) for a second opinion. Urinalysis revealed microscopic hematuria [red blood cell count: 21–25/high-power field (HPF)]

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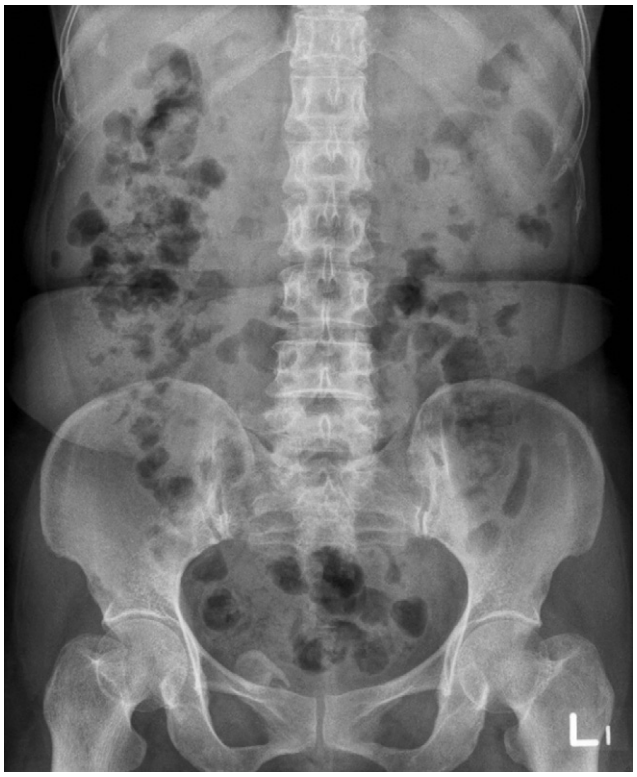

Figure 1 Plain abdominal X-ray of the kidney—ureter—bladder showing a radiopaque mass on the right side of the pelvic cavity.

and pyuria (white blood cell count: 31—35/HPF), both of which are indicative of cystitis. An abdominal X-ray of the kidney—ureter—bladder (KUB) revealed a radiopaque shadow in the right pelvic cavity (Figure 1); therefore, a cystoscopy was performed, which revealed a bladder stone about 3 cm in size that was located in the right lateral wall of the urinary bladder (Figure 2). The stone was immobile and appeared to be fixed to the bladder wall; the patient was then admitted for a cystolithotripsy. The stone was cracked in to pieces using a pneumatic Swiss lithoclast (EMS, Swiss). During the operation, a blue thread was determined to be the core of the stone at one end; this thread was attached to the bladder wall at the other end. After the complete removal of the stone fragments, the blue thread was extracted from the bladder wall using foreign body forceps (Olympus, Germany). Some resistance was encountered during the extraction process. Because the patient had undergone a sling operation for stress incontinence approximately 20 years previously, the blue thread was believed to be a part of the sling material that had since migrated and eroded through the bladder wall, thus resulting in the formation of the stone. Careful examination showed that the extracted thread was a type of nonabsorbable braided suture such as Ethibond, i.e., a nonabsorbable suture made of polyester polyethylene terephthalate and coated with polybutilate. The patient's UTI symptoms were resolved within a few days following the operation, and the patient was uneventfully discharged. Follow-up urinalysis at OPD was normal and the patient was symptom-free.

3. Discussion

Women face numerous major risk factors for developing UTIs, including inadequate fluid intake, infrequent urination, poor personal hygiene, and immunosuppressive status. When examining young women, an unusually active

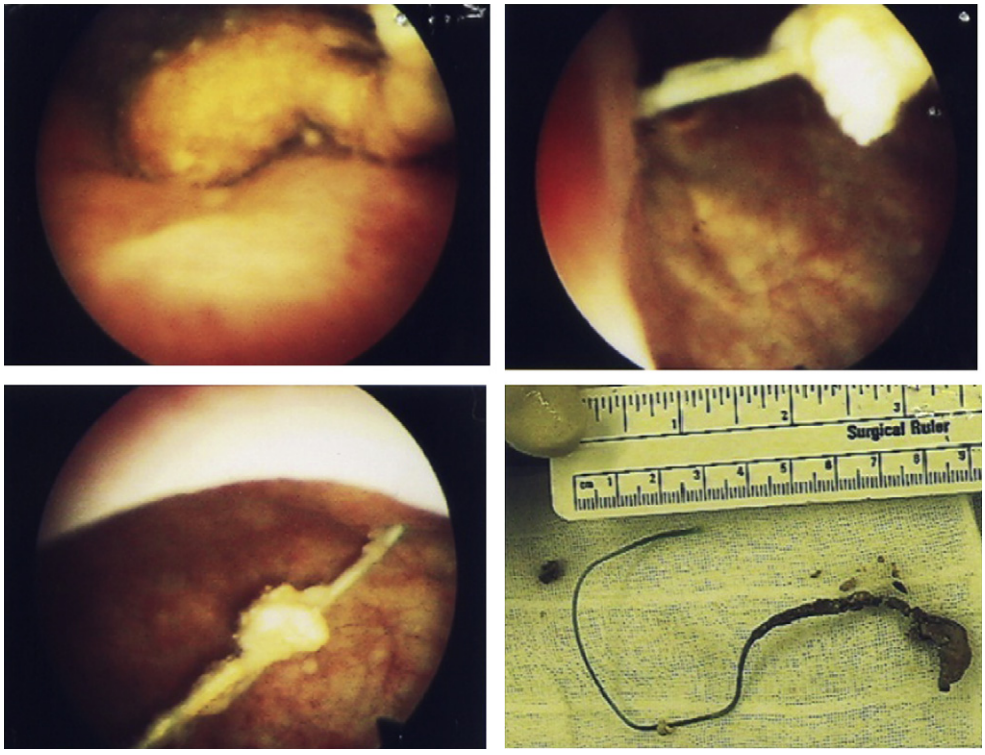

Figure 2 Cystoscopic images of the bladder stone that formed around the eroded suture material.

sex life, the use of a vaginal diaphragm, and infrequently changing menstrual pads during menstruation are additional factors that need to be considered; for older women, factors such as diabetes, urinary incontinence, and pelvic organ prolapse need to be considered. When considering recurrent UTIs, other unusual causes, such as a congenital anomaly or the presence of a foreign body, should also be considered. Sometimes urinary stones can develop because the foreign body serves as the initiating nidus within the bladder,[1] thereby complicating the situation. Although UTIs respond well to a short course of empiric antibiotics in most cases,[2] the special types of UTI mentioned above are always unresponsive unless the underlying causes are identified and corrected. As a result, when evaluating intractable and complicated UTIs, it is always helpful to be alert to the possibility of an underlying cause, rather than presuming that women are simply prone to the usual types of UTI. Sometimes a KUB X-ray or outpatient cystoscopic examination can yield important information that can be used to elucidate the underlying problem.

Stress urinary incontinence, a condition often seen in postmenopausal women, is a consequence of pelvic floor weakness and insufficient support of the vesicourethral sphincteric unit. It can lead to unwanted urinary leakage, which is socially embarrassing and creates a hygiene problem. The basic goal of surgical correction is to realign the suspension of the vesicourethral sphincteric unit to its proper position. The operation can either be the classic retropubic sling surgery or the most up-to-date and minimally invasive tension-free procedure, such as the tension-free vaginal tape surgery. All of these anti-incontinence operations rely on sutures or slings, which consist of allographic or synthetic materials, to provide the necessary support. Complications are rare but mostly consist of perforations to the urinary bladder, which have been reported to occur following 4.9—9.0% of surgeries.[3] In general, complications are either related to an improperly performed procedure or the failure to perform an intraoperative cystoscopic examination. If a bladder injury does occur, 95% of patients tend to present with hematuria shortly afterward; this complication will in turn alert the attending physician of the bladder injury. If a synthetic material is used in the procedure, it carries an extra risk of erosion into the urinary bladder or urethra.[4] Erosion rates vary, but have been reported to occur following 0.3—23% of surgeries.[5] Unfortunately, the process of erosion is often chronic and indolent, usually presenting as recurrent UTIs. Correct diagnosis depends on the complete and careful examination of the patient's medical history by a highly attentive consulting physician.

Encrustation usually occurs on the surface of the eroded foreign body following contact with urine. The inevitable result is the formation of urinary stones. Removal of the encrusted stones can be safely and effectively performed using various endoscopic approaches, such as using a laser,[5] electrohydraulic, ultrasonic, or pneumatic lithotrites, or simple mechanical crushing devices. However, difficulties may be encountered when attempting to remove foreign bodies that are permanently embedded in the bladder wall. In uncomplicated cases, excision of the part exposed to the deep bladder mucosa is usually sufficient. Unfortunately, if simple endoscopic manipulation fails, a complete laparotomy may be necessary to completely remove the foreign body.

4. Conclusion

This case emphasizes the importance of considering the possibility of a foreign body in the differential diagnosis of recurrent and intractable UTIs. The patient's surgical history of the lower abdomen or pelvis should be evaluated in detail. This is especially true if the previous operation involved the use of synthetic materials, such as nonabsorbable sutures or meshes. This case also demonstrates that even a plain abdominal X-ray can be of great help for diagnostic purposes. Prompt and accurate identification of the cause is essential for successfully minimizing the morbidity associated with bladder stones. Accurate diagnosis also helps to avoid the prolonged or unnecessary use of antibiotics.

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