Case Report

Migrating foreign body into the urinary bladder of children postperineal trauma

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Abstract

Foreign body (FB) in the urinary bladder (UB) is uncommon and rarely reported in pediatric patients. FB migration into the UB is an extremely rare and unpredictable condition that needs a high index of suspicion with meticulous history taking and clinical reasoning, so diagnosis may be challenging. In this study, we report two cases of male pediatric patients from Sudan with FB in the UB, with a history of penetrating perineal trauma, both were presented with irritative lower urinary tract symptoms, history of penetrating perineal trauma, and unremarkable clinical examination. Both were diagnosed by abdominal Ultrasound study (USS) and confirmed by cystoscopy. One child was treated by endoscopic extraction, while the other was treated by open surgical extraction. The outcome of treatment of both the cases was satisfactory.

Keywords: Foreign body, migration, perineal trauma, urinary bladder

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Received: 14.04.2022, **Accepted:** 04.10.2022, **Published:** 17.01.2023.

INTRODUCTION

Foreign body (FB) in the urinary bladder (UB) is unusual with variable causes and a wide range of objects that are reported to be found in the UB;[1,2] however, they are rarely reported in children.[3] They can be self-inserted through the urethra, migrated from adjacent organs, as a complication of surgical procedure or instrumentation, or because of penetrating trauma.[4-6] Migration of FB to the UB from adjacent organs is rare, and it can penetrate from the Gastrointestinal tract (GIT) or Genitourinary (GU) tract [2]. The patient usually presents with urinary tract infection (UTI), dribbling, hematuria, dysuria, and sometimes urine retention.[1,7] They are usually detected by USS or X-ray if they were radio-opaque and confirmed by cystoscopy.[1,2] The primary treatment is removal endoscopically or by open surgery according to the patient's condition and age, type, and location of the object.[2,7] In this study, we report two male pediatric patients from Sudan presented with FB in their UB following penetrating perineal trauma, both were diagnosed by USS and confirmed by cystoscopy. One of them was treated endoscopically, while the other was treated surgically.

CASE REPORTS

Case 1

A 1-year-old boy was brought to the urology clinic by his parents with a 6-h history of excessive crying, severe dysuria, and holding his penis when attempting to urinate. His parents mentioned that about 2 months ago, he was fallen on a disposable syringe on the ground while he

Access this article online	
Quick Response Code:	Website: www.urologyannals.com
	DOI: 10.4103/ua.ua_55_22

How to cite this article: Alzubier MA, AlAsmi R, Taha SM, Osman YM. Migrating foreign body into the urinary bladder of children postperineal trauma. Urol Ann 2023;15:109-12.

was playing and the needle part was broken between his buttocks; at that time, he did a pelvic X-ray twice, initially, and after 1 month that confirmed the presence of the needle immediately below the coccyx and he was advised to be treated conservatively and there were no urinary symptoms at that time. On examination, he was irritable, and there was no evidence of urine retention or palpable stone in the urethra; his genital examination was normal also. USS was done immediately and reported that there was a needle-like FB in the posterior wall of the UB; a new X-ray was done also and revealed progressive forward advancement of the needle in comparison to the previous images [Figure 1].

He was prepared for cystoscopy under general anesthesia, and as there was no pediatric cystoscope in our setting, we used a ureteroscope of 8 F size. The urethra and UB were normal, but the tip of the needle protruded through the posterior wall of the UB. It was difficult to be grasped at first, so digital rectal manipulation was done while the scope was inside. This led to the pushing of the needle inside the UB. After that, we used the grasper to pull the needle inside the UB completely [Figure 2a], and then it was held by the grasper longitudinally with the axis of the scope to facilitate its endoscopic removal [Figure 2b]. Fortunately, endoscopic removal succeeded, and the needle was extracted outside without difficulty or urethral injury [Figure 3]. He was discharged the next day and seen 1 week later in a good condition and the parents were satisfied and happy about the treatment and care provided.

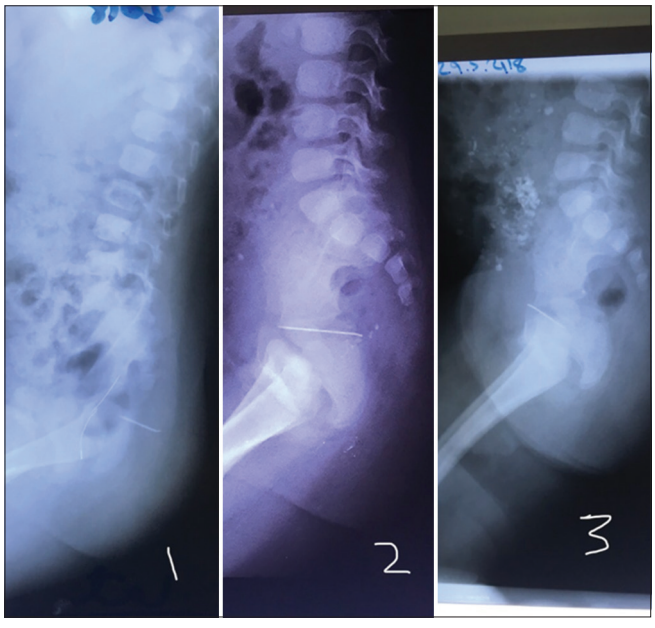

Figure 1: Serial X-rays show progressive forward advancement of the FB. FB: Foreign body

Case 2

A 5-year-old male presented with burning micturition and dysuria for more than 3 months, which was diagnosed as recurrent UTI in a district hospital for the last 3 months and he received antibiotics many times. There was a history of perineal stick trauma 9 months ago which caused rectal injury and was managed conservatively and there were no urinary symptoms at that time. On examination, no abnormality was detected. Laboratory investigations showed uncountable pus cells and red blood cells in urine, blood count and renal profile were within normal, while USS showed FB in the UB. He was planned for cystoscopy under general anesthesia. Cystoscopy showed stick fragments in the UB, and the bladder was intact, and digital rectal examination under anesthesia was normal. The bladder was opened through a transverse suprapubic incision and the FB was removed [Figure 4]. Unfortunately, no photograph was taken during cystoscopy or surgical extraction. The postoperative course was uneventful, and the patient was discharged on day 3 in good condition.

DISCUSSION

FB in the UB is uncommon[8], with few cases reported in pediatrics,[3] and usually result from iatrogenic injury, self-insertion for sexual gratification, or in psychiatric patients, and they can rarely migrate from adjacent organs, or following penetrating perineal trauma.[2,4,5,9] They also descend from the ureter or are formed as an encrustation over nonabsorbable suture material.[6,10] Self-insertion is rarely reported before puberty.[3]

Many objects are reported as FB in UB, like electrical wires, bullets, intrauterine contraceptive devices, encrusted

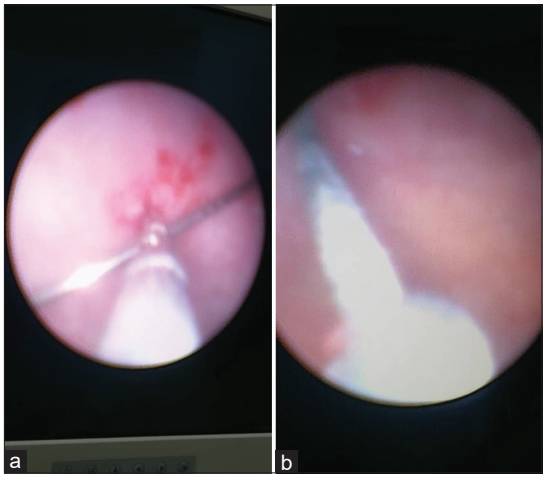

Figure 2: (a) Endoscopic appearance of the needle held by the grasper to be pulled completely inside the UB, and (b) The needle is held longitudinally with the axis of instruments to facilitate trans-urethral removal. UB: Urinary bladder

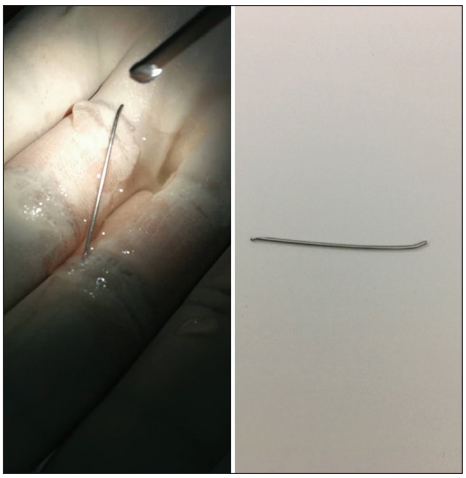

Figure 3: The needle removed endoscopically

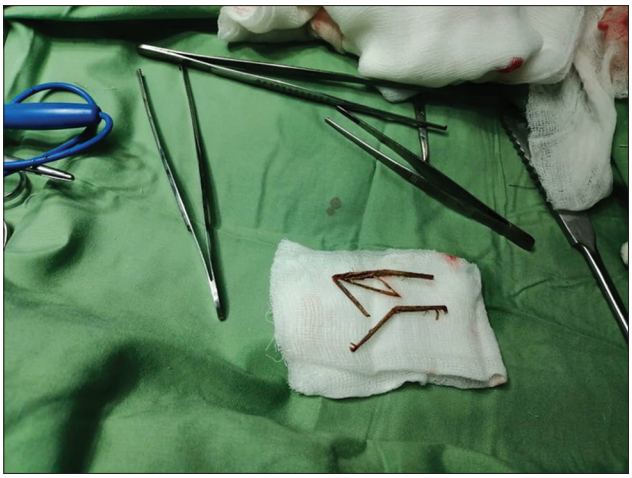

Figure 4: Stick fragments removed from UB surgically. UB: Urinary bladder

sutures, needles, broken parts of endoscopic instruments, parts of Foley catheters, and neglected JJ stents.[2] Mesh erosion into the UB is reported after inguinal hernia repair.[11] Mibang *et al*. reported the insertion of a glass ampoule in the female urethra for eroticism, which slipped inside the UB.[8] FB can act as a nidus over which encrustation can occur over a long time of contact with urine and this can lead to stone formation.[4,10] The incidence of iatrogenic FB in UB is rising due to the increase in the number of endoscopic urological procedures.[4] Although it is reported in many cases, self-insertion of FB in males' UB is relatively difficult when compared to females.[6,12]

Migration of FB from adjacent organs into the UB is rare.[13] The mechanism of migration is not well understood, but usually, the migration is a slow process and may be facilitated by muscular activity and/or gravitational force.[5]

The usual presentation is UTI, pain, hematuria, and urolithiasis, as it may be asymptomatic.[1,6] Some patients presented for removal,[13] and acute abdomen due to bladder FB has also been reported.[9] The examination is usually unremarkable.[4] Most cases are treated as UTIs first, and when the symptoms persist, recur frequently, or become more severe, imaging studies are done and reveal the presence of FB in UB. USS and X-ray are the most used image modality to diagnose FB,[5] and cystoscopy remains the gold standard procedure to confirm the diagnosis.[2] Most are treated endoscopically, especially female patients as their urethra are short and straight,[6,12] and open surgery is used when endoscopic removal is difficult or not available.[2]

In our study, we faced two difficulties regarding the first case: the first one was the unavailability of the pediatric cystoscope, and this problem was overcome using the ureteroscope that was satisfied. The second difficulty was the inability to grasp the presenting part of the FB at first, so we try to manipulate it by digital rectal examination under cystoscopic control, and fortunately, the needle was pushed inside the UB and was held by the grasper and removed successfully by the scope without difficulty or complication.

Some complications that may result from FB insertion or removal include urinary fistula, urethral stricture, and/or diverticulum.[7]

CONCLUSIONS

FB in UB is unusual and commonly resulted from self-insertion for sexual curiosity or gratification and in psychiatric patients. They are rarely reported in pediatrics. Their migration from adjacent organs should be suspected in patients with unexplained lower urinary tract symptoms who sustained perineal trauma that resulted in FB being left behind. USS is a good tool for diagnosis. The role of endourology is crucial in the diagnosis and treatment of most cases.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients' guardians have given consent for images and other clinical information to be reported and published. They understand that their kids' names and initials will not be published, and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Acknowledgments

We thank all people including surgical staff and nurses who taken care of patients.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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