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RESEARCH ARTICLE
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"BEYOND THE URETHRA: A CASE SERIES ON INTRAVESICAL FOREIGN BODIES AND THEIR SURGICAL MANAGEMENT"

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Abstract

Background: Intravesical foreign bodies (FBs) are an uncommon but clinically significant urological concern. Usual modes of entry of foreign bodies into the bladder include self-insertion, migration, or due to iatrogenic and penetrating injuries. Their presence can lead to a spectrum of symptoms and complications depending on the nature, size, and duration of the retained object. Lower urinary tract symptoms(LUTS) is the most common mode of presentation of such patients. Early diagnosis and minimally invasive extraction techniques contribute to favourable outcomes in patients with foreign bodies in the urinary bladder. Radiolucent foreign bodies pose a great challenge to urologists.

Objective: To present a case series detailing four varied presentations of bladder foreign bodies and highlight diagnostic and surgical management strategies. Here we report a case series of intravesical foreign bodies presented to our hospital for evaluation and management.

Methods: A retrospective case series of four patients who presented with intravesical foreign bodies was analyzed. Demographics, presentation, imaging, management, and outcomes were reviewed.

Results: All four patients underwent successful endoscopic or combined procedures with minimal morbidity. Two cases involved forgotten DJ stents, one was a self-inserted twig, and another was hair likely due to catheter-related contamination. All were managed with either cystoscopic removal or combined approaches such as PCNL.

Conclusion: Foreign bodies in the urinary bladder pose diagnostic and therapeutic challenges to the surgeon. Early cystoscopic evaluation and minimally invasive retrieval are essential to prevent complications. Awareness and timely follow-up are key, particularly for iatrogenic cases.

Keywords – foreign body, DJ stent , self-inserted object, endoscopic management, iatrogenic injury, bladder calculi, cystoscopy, radiolucent foreign bodies, urethral stricture, UTIs, pyelonephritis, schizophrenia, psychiatric evaluation, forgotten stents, and urinary bladder pathology.

Abbreviations- UTI (Urinary Tract Infection), DJ stent (Double-J Ureteral Stent), PCNL (Percutaneous Nephrolithotomy), RIRS (Retrograde Intrarenal Surgery), TURP (Transurethral Resection of the Prostate), USG (Ultrasonography), CECT (Contrast-Enhanced Computed Tomography), KUB (Kidney, Ureter, Bladder), VIU (Visual Internal Urethrotomy), OPD (Outpatient Department), PAC (Pre-Anaesthetic Checkup), and OT (Operation Theatre),

Introduction

Foreign bodies in the urinary bladder, although rare, pose diagnostic and therapeutic challenges for urologists and general surgeons. These objects may be introduced through the urethra for autoerotic purposes[1,6] , migration from adjacent organs[1,3,4] , iatrogenic causes[7], or as a consequence of trauma[1]. Depending on the nature of the object, patients may remain asymptomatic or present with a variety of complaints ranging from haematuria and pelvic pain to urinary retention and infection.[8,9,10]

The clinical significance of bladder foreign bodies lies in their potential to cause chronic irritation, stone formation, infection, and even bladder perforation[8,9,10].It can lead to significant morbidity. Radiological imaging, particularly plain X-ray and ultrasonography, assists in the localization and characterization of radiopaque and radiolucent objects. Cystoscopy remains the cornerstone for diagnosis and therapeutic intervention [8,9]. This case series aims to describe our institutional experience in a tertiary care center in managing such cases and to underscore the nuances of their diagnosis and treatment. Management of these cases can be achieved mainly by endoscopic procedures, despite that some of them may need surgical intervention.

Case Presentations:

CASE 1

A 26-year-old male came with occasional haematuria for 1 month and right flank and suprapubic pain for 1 week. The patient had a history of right renal calculi 4 years ago, for which he underwent right PCNL with right DJ stenting, but he forgot to follow up for stent removal. X-ray KUB was suggestive of a large urinary bladder calculus at the vesical end of the DJ stent with calcification at the upper end [figure 1]. USG KUB shows 3.1 cm calculus in the urinary bladder with right moderate to severe hydronephrosis. CECT abdomen + pelvis showed dense calcification at both tips of the DJ stent and breakage in the lower part of the DJ stent with moderate right hydroureteronephrosis. Patient underwent cystolithotripsy and the lower fragment of the DJ stent was removed followed by right PCNL in the same sitting where upper fragment of DJ stent was also removed and right DJ stenting was done [figure 2]. After 2 weeks post-surgery right DJ stent was removed, and USG was done, which showed no residual calculi in the urinary bladder as well as in the right kidney.

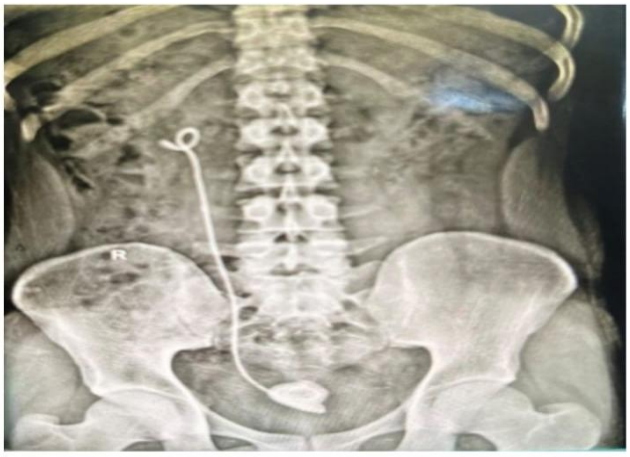

Figure 1

Figure 1: X-ray KUB showing encrusted DJ stent with bladder and renal calcifications (Case 1).

Figure 2

Figure 2: Post-operative image following stent and stone removal (Case 1).

CASE 2

A 44-year-old male with midbulbar urethral stricture, presented with difficulty in micturition associated with burning sensation and straining. The patient underwent VIU 3 times in the past, and he was advised to self-dilate with a K-90 catheter. One day patient was having a sensation of urinary retention, and he did not have a K-90 catheter with him, so he took a twig of a tree similar in diameter to a K-90 catheter and used it for urethral dilatation. Twig broken down, and part of it remained inside. The patient, taken for emergency OT and urethrocystoscopy, showed narrowing at midbulbar urethra [figure 3]. Paediatric ureteroscope negotiated through the stricturous urethra into the bladder and the twig visualized in the urinary bladder [figure 4] . 10.5cm long twig delivered out using forceps [figure 5,6].

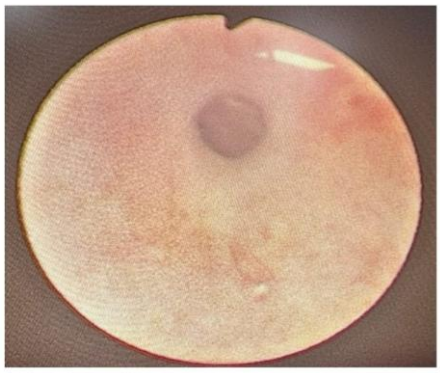

Figure 3

Figure 3: Cystoscopic view showing urethral stricture (Case 2).

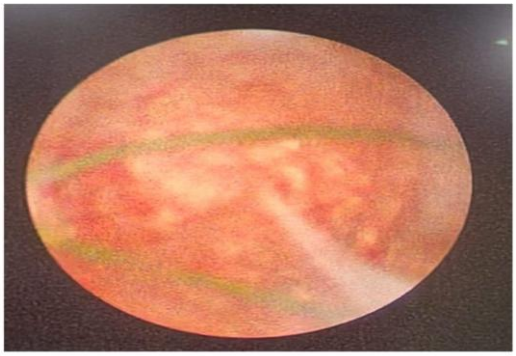

Figure 4

Figure 4: Visualization of twig in bladder under cystoscopy (Case 2).

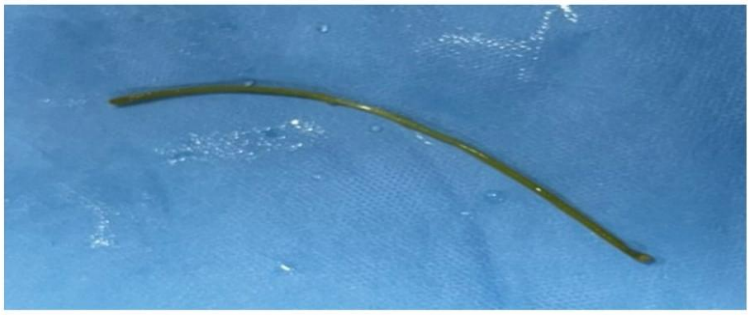

Figure 5

Figure 5: Extracted specimen (twig) (Case 2).

Figure 6

Figure 6: Measuring the dimension of the extracted specimen (twig), 10.5 cm in length (Case 2).

CASE 3

65 year 65-year-old female k/c/o DM/ HTN, on medications, with h/o fracture of left radius and left femur s/p internal fixation presented with complaints of burning micturition and fever for 10 days associated with left flank pain. In April 2023, because of bilateral staghorn calculi, right pyelonephritis, and a bilateral DJ stent in situ since September 2022. Patient underwent Diagnostic cystourethroscopy and Bilateral stent exchange in April 2023. USG abdomen plus pelvis was suggestive of emphysematous pyelonephritis in the right kidney, and the patient was treated with IV antibiotics and pigtail insertion for abscess drainage in the right kidney. Later in September 2023 patient underwent Left RIRS with Bilateral DJ stenting and Right RIRS + PCNL with Right DJ Stent exchange in October 2023. The patient did not follow up for DJ stent removal and presented with neglected bilateral DJ stents with cystitis. X-ray KUB showed retained DJ stent and multiple renal calculi in the right kidney [Figure 7]. The patient underwent emergency DJ stent removal under local anaesthesia and was then planned for surgical intervention for residual/recurrent calculi.

Figure 7: X-ray KUB showing retained DJ stents and renal calculi (Case 3).

CASE 4

62 year 62-year-old male with k/c/o DM, hypothyroidism, and Schizophrenia complained of recurrent urinary retention for which a Foley catheterization was done. The patient was having recurrent urine infections positive for E.Coli so Fosfomycin sachets were given as per sensitivity. USG was done s/o prostate 74 cc. So after PAC fitness, the patient was taken for TURP, and on cystoscopy, there were e/o multiple hairs in the urinary bladder[figure 8]. Hairs were removed using forceps, and then proceeded with TURP.

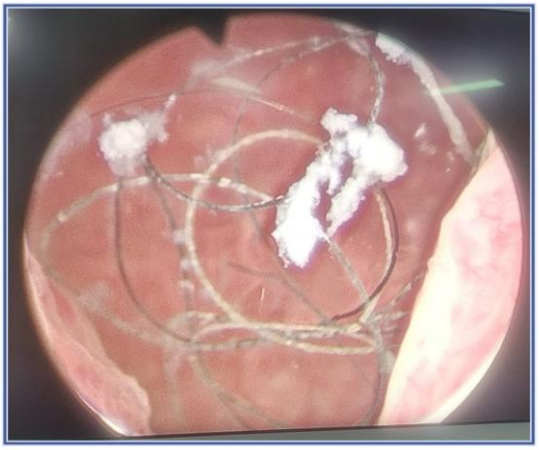

Figure 8

Figure 8: Cystoscopic image showing hair in bladder (Case 4).

Table 1 : Summary of foreign bodies in the urinary bladder

Sr. no	Age (Yrs)	Sex	Type of Foreign Body	Mode of entry	Treatment
1	26	M	DJ stent	Forgotten DJ Stent	Surgical intervention and endoscopic removal
2	44	M	Twig of a tree	Self Insertion	Endoscopic removal
3	65	F	DJ stent	Forgotten DJ Stent	Endoscopic removal
4	62	M	Hairs	Incidental Finding	Endoscopic removal

Discussion -

In our case series , all four cases had foreign bodies in the urinary bladder. We encountered these 4 cases in a period of 1 year, out of which 3 were male and 1 was female. This is similar to other studies in which there is a male preponderance [9,11,12.13] . Bansal et al in their study noted that iatrogenic and self-inserted foreign bodies have become major contributors to the incidence of foreign bodies in the urinary bladder [14]. In the 1st case, the patient forgot to follow up for DJ stent removal and presented after 4 years with complaints of haematuria and flank pain with suprapubic pain. With surgical intervention, the forgotten DJ stent was removed. The second case of self-insertion of a tree twig was for urethral dilatation. The patient presented 4 days after the incident because of the shame and embarrassment associated with the condition [9,14,15] . In the third case, female patient had staghorn calculi and pyelonephritis, so DJ stenting was done then stent was exchanged, and for the calculi, she underwent surgical intervention and DJ stenting for 2-3 times after which she did not follow up for stent removal and then presented with DJ stent as foreign body. The stent was removed immediately, and the patient was then planned for Surgical intervention for residual/recurrent calculi. In the 4th case, the patient is a known case of schizophrenia and was planned for TURP, and before TURP, urethrocystoscopy was done and found hairs in the urinary bladder.

We successfully removed all foreign bodies via endoscopic procedures, but in 1st case, we did PCNL to remove the upper fragment of the DJ stent. A patient with a DJ stent as a foreign body had complications of urosepsis but managed with IV antibiotics for a week.

Conclusion –

Foreign bodies in the urinary bladder constitute a diagnostic curiosity and therapeutic challenge. It should be considered in patients presenting with recurrent urinary tract infections and poor response to antibiotic therapy. Timely intervention using cystoscopic techniques ensures minimal morbidity, while open approaches may be warranted for large or embedded objects. Removal of the foreign body without injury to the urinary tract usually results in excellent outcome.

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