

Unusual Intravesical Foreign Bodies and their Management

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Abstract: *Objective:* The objective of the study was to evaluate the difficulties in diagnosis and management of various intravesical foreign bodies.

Material and Methods: Retrospective review of patients with unusual intravesical foreign bodies presented at department of urology, from January 1992 to August 2011. Their record were reviewed for age and sex, clinical presentation, investigations, and treatment offered. All patients underwent evaluation including history, physical examination, ancillary testing as indicated and subjective symptom appraisal.

Results: Age of the 25 patients (male female ratio, 1.7:1) in study group varied from 1 to 65 years (mean age, 34.2 years). Nineteen patients (76%) had iatrogenic foreign bodies including retained corrugated rubber sheet in 1, a piece of a Foley balloon catheter in 7, cu- T wrongly put in urethra in 1 patient, cut end of Foley's catheter in 3, fractured segment of Foley's catheter in 1 patient, thread pieces in 1, Malecot rubber piece in 1 and DJ stent in 4 patients. All of these patients had undergone some surgical intervention or urinary tract manipulation at peripheral hospitals and presented at variable intervals after the primary intervention. Four patients (16%) had migratory foreign body and 2 (8%) had self inserted foreign body. The most common presenting symptoms were urinary frequency, and dysuria. Endoscopic retrieval was possible in 11 (44.0%) patients, percutaneous cystolitholapaxy with removal of foreign body was possible in 7 (28%) and the remaining 7 (28%) underwent open cystostomy. None of the patients had any postoperative complications

Conclusion: Intravesical foreign bodies should be included in the differential diagnosis of patients presenting with chronic/recurrent lower urinary tract symptoms after previous history of pelvic surgery, instrumentation or IUCD insertion. Radiological evaluation is necessary to determine the exact size, number, and nature of foreign bodies and associated complications like stones. Most intra vesical foreign bodies can be retrieved with endoscopic and minimally invasive techniques.

Keywords: Intravesical Foreign bodies, Foley's Catheter Stem, DJ Stent, Rubber sheet, Metallic Coil Diagnosis, Management, Endoscopic Removal, Missed IUCD.

INTRODUCTION

The presence of foreign bodies in the urinary bladder has always been an interesting topic. A review of the literature on this subject reveals that almost any conceivable object has been introduced in to the urinary bladder. Introduction into the bladder may be self-insertion (through the urethra), iatrogenic, migration from adjacent organs, or a results of penetrating trauma [1-3]. Not all patients volunteer their history of insertion, especially those who have inserted the objects for sexual gratification. Many patients do not seek advice for months due to embarrassment. The presenting features usually include dysuria, urinary tract infection, pain and hematuria. This study presents our experience of various intravesical foreign bodies at our institution over a period of 19 years. In addition, the discussion focuses on reviewing and updating the knowledge on management of intravesical foreign bodies reported in the current literature.

MATERIAL AND METHODS

Retrospective review of patients with unusual intravesical foreign bodies presented at department of urology, from January 1992 to August 2011. Their record were reviewed for age and sex, type of FB, clinical presentation, investigations, and treatment offered. All patients underwent evaluation including history, physical examination, ancillary testing as indicated and subjective symptom appraisal.

RESULTS

Age of the 25 patients (male female ratio, 1.7:1) in study group varied from 1 to 65 years (mean age, 34.2 years). They presented with urinary frequency, dysuria (most common), recurrent urinary tract infection, hematuria, urinary retention and missing IUCD. Nineteen patients had iatrogenic foreign bodies including retained corrugated rubber sheet in 1, a piece of a Foleys catheter balloon in 7, cu- T (Figure 1) wrongly put in urethra in 1, cut end of Foley's catheter in 3, fractured segment of Foley's catheter in 1, thread pieces in 1, Malecot rubber piece in 1 and DJ stent (Figure 2) in 4 patients. All of these patients had previous surgery or urinary tract manipulation at

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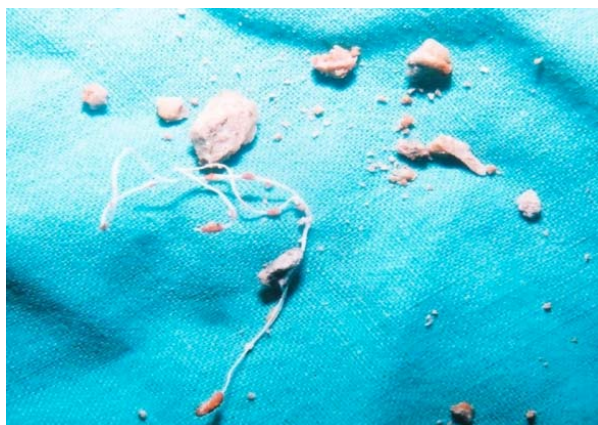
Table 1: Total Number of Cases

Foreign body	Number of cases	Percentage
Cu- T	5	20%
Corrugated rubber sheet	1	4%
Cut end of Foley's catheter	3	12%
Fractured segment of Foley's catheter	1	4%
Piece of Foley's balloon	7	28%
DJ stent	4	16%
Malecot rubber piece	1	4%
Thread pieces	1	4%
Small stick piece	1	4%
Electric wire	1	4%
Total	25	100%

Table 2: Surgical Procedure Done

Procedure	Number of cases	Percentage
Open Cystotomy and removal of foreign body	7	28%
Percutaneous Cystolitholapaxy with removal of foreign body	7	28%
Endoscopic Removal of foreign body	11	44%
Total	25	100%

peripheral hospitals and presented at variable intervals after the primary intervention. Four patients (16%) had migratory foreign body and 2 (8%) had self inserted foreign body. Diagnosis was possible by X-ray in 80 % of cases, 20 % had intravenous Urogram, 40% had ultrasonography and 8% had NECT (Figure 3). Endoscopic retrieval was possible in 11 (44.0%) patients, percutaneous cystolitholapaxy with removal of foreign body was possible in 7 (28%) and the remaining 7 (28%) underwent open cystostomy.

**Figure 1:** Shows calculus formation on an IUCD.

Hospital stay varied 1 -5 days and none of the patients had any postoperative complications. Patients maintained urine culture sterile in a follow up from 6 months to two year without any late complication like stricture meatal stenosis or sexual dysfunction.

**Figure 2:** DJ stent after removal with stone formation.

DISCUSSION

Intravesical foreign bodies are an important consideration in the differential diagnosis of lower

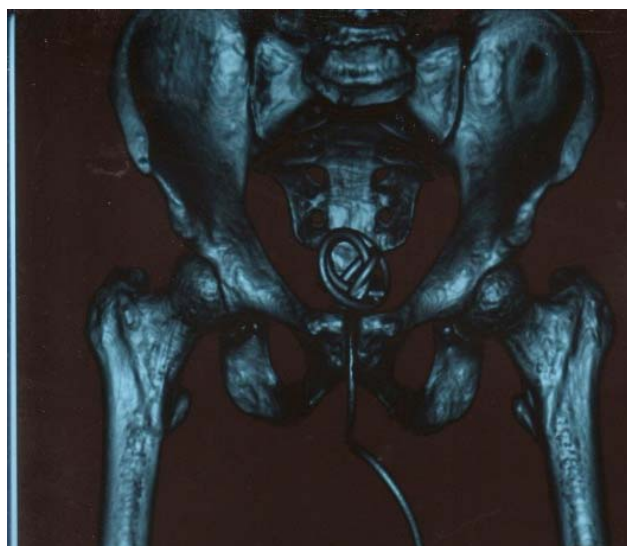


Figure 3: NECT film shows a coiled-up metal wire in bladder.

urinary tract problems. Usually, foreign bodies are self-introduced, result of medical errors, migrated from the surrounding organs, or result of a penetrating injury [2]. A variety of objects have been reported to migrate into the urinary bladder from the surrounding pelvic organs, including IUCD, vaginal pessary, artificial urinary sphincter, prosthetic slings, non-absorbable sutures used in Stamey procedures, surgical gauze, etc. [4-10]. Intravesical foreign bodies may be divided into iatrogenic, self inserted or accidental. Eighty four percentage of the patients had iatrogenic and 8% each had self inserted and accidental. In our study foreign bodies were introduced into bladder by two patients for sexual gratification. Psychiatric disorder has been reported to be common in such patients so their psychiatric evaluation is recommended [3]. Psychiatric evaluation was done in our patients and they were treated accordingly. Accidental foreign bodies were one IUCD placed by paramedical staff in bladder and another one stick slipped in to urethra during childish play.

Migration of IUCD is not uncommon; it may penetrate into retrovesical space in the peritoneum, bowel and bladder [11-13]. Diagnosis of displaced IUCD could be made by plain X ray or ultrasonogram. Cu-T in bladder may reach after perforation of uterine wall and may be placed in bladder itself as it was placed by paramedical staff as reported in present study, urinary symptoms antedated with the insertion of Cu T; Cu T failure, Cu T with stone around it lying free in bladder without evidence of wall perforation on cystoscopy and unusual length of Cu T thread. Thus it is prudent to remember this complication of bladder

perforation by IUCD in any woman who presents with voiding symptoms, repeated attacks of urinary infection and secondary vesical calculus. Management of migrated IUCD is laproscopic removal/ laprotomy in intraperitoneal IUCD or endoscopic removal from bladder [13, 14]. In present study Cu- T from bladder with or without stone was easily removed by endoscopic procedure in five cases.

Catheter tips, parts of catheter balloon, bougies, and beak of resectoscope sheath are some of the reported iatrogenic foreign bodies recovered from bladder [7, 15-17].

In most of the cases the iatrogenic FB were found incidentally in the core of vesical calculus during intracorporeal cystolithotripsy/litholapaxy procedure. The commonest iatrogenic foreign bodies we found in the urinary bladder were broken pieces of balloon of Foleys catheters (seven cases) due to overlooking the remaining piece of Foleys balloon during removal. Special attention must be paid to ensure that the broken part of the Foleys balloon is retrieved especially when ether instillation, needle puncture or overinflation of balloon are used for removal of an impacted Foleys catheter. Sometimes, the cut stem and balloon of the Foley catheter left within the bladder for later removal. This should be explained to the patient and documented in the case sheet before referral.

It is difficult to explain the presence of a corrugated rubber drain part we found in one case. Probably infection may have caused an abscess formation which burst into the bladder, carrying the drain part with it.

The commonest cause of a forgotten Double-J stent is patient ignorance about the stent in place. We encountered four such cases. We recommend a DJ stent registry to be maintained by all urologists, containing the communication address and phone number of the patients to be recalled for DJ removal.

Symptoms of intravesical foreign bodies are usually those of acute cystitis including urinary frequency, dysuria, hematuria, and strangury. More importantly, patients occasionally present with no symptoms or complaint of minimal discomfort [15]. Radio-opaque intravesical foreign bodies can usually be detected on X-Ray KUB. Intravenous urography or retrograde urethrography may provide additional information and occasionally reveal surprising findings and unexpected radiolucent objects [1]. Definitive management of intravesical foreign bodies is aimed at providing

complete removal of the foreign body with minimal complications such as trauma to the bladder and urethra, peritonitis, urinary tract infection, hematuria, etc. On rare occasions, foreign bodies may be spontaneously expelled from the bladder during urination [18]. Most foreign bodies in the bladder may be removed either complete or after fragmentation *via* the endoscopic approach. But if endoscopic removal is not possible then open cystotomy is done (7 cases in present study). Conventionally, grasping forceps and retrieval baskets are used for removal of a foreign body. In some cases, grasping an object with an alligator or calculus forceps increases the effective diameter of that object and may make removal difficult and hazardous. In the past few decades, several modifications of endoscopic instruments and devices have been developed, especially for removing foreign bodies. Reportedly, cylindrical foreign bodies and thermometers have been removed *via* transurethral route using rigid and flexible cystoscopy, respectively [19, 20]. In recent years, because of their larger diameter and straight and strong design, the use of percutaneous instruments has been suggested for removing longer and stiff intravesical foreign bodies [21]. Metal wires introduced into the bladder usually get curled up due to bladder contractions. In some cases, a wire can be removed endoscopically [22, 23]; however, in most cases, open surgery is required to minimize urethral trauma during perurethral extraction. Habermacher and Nadler [24] reported the use of holmium laser to fragment a detached 26-F resectoscope sheath tip before its transurethral removal without any complications. The use of laser for intravesical fragmentation and subsequent removal of large intravesical foreign bodies is a promising new technique for urological surgeons.

CONCLUSION

Intravesical foreign bodies should be a differential diagnosis in patients presenting with chronic/recurrent lower urinary tract symptoms after previous history of pelvic surgery, instrumentation or IUCD insertion. Radiological evaluation is necessary to determine the exact size, number, and nature of foreign bodies and associated complications like stones. Most intra vesical foreign bodies can be retrieved with endoscopic and minimally invasive techniques and open surgery should be the last option. The commonest foreign body in this series was iatrogenic which can mostly be prevented by careful inspection of the Foley balloon during removal and maintenance of a DJ stent registry.

ABBREVIATIONS AND ACRONYMS

FB	=	Foreign body
IUCD	=	Intrauterine contraceptive device
cu-T	=	Copper T
DJ	=	stent Double j stent
KUB	=	Kidney Urinary Bladder Area

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