Intrauterine Contraceptive Device Migrated into the Urinary Bladder and a Review of the Literature

Mesaneye Göç Etmiş İntrauterin Araç ve Literatürün Değerlendirilmesi

Mesanede İntrauterin Araç / Intrauterin Device at Bladder

Orhan Unal Zorba[1], Hakki Uzun[2]
[1]Deparment of Urology, [2]Deparment of Urology,
Recep Tayyip Erdoğan University, School of Medicine, Rize, Turkey

Özet

İntrauterin kontraseptif araçlar klinik pratikte 1963 yılından bu yana kullanılmaktadır. Ucuz ve verimli olmalarından dolayı intrauterin kontraseptif araçların gelişmekte olan ülkelerde geri dönüşümlü kontrasepsiyon için sıklıkla kullanılmaktadır. İntrauterin kontraseptif aracın migrasyon insidansı %0,003 ile %0,87 arasında değişmektedir. İntrauterin kontraseptif aracın mesane, rektum, apendiks, kolon, periton, anteriyor abdominal duvar ve overe migrasyonu bildirilmiştir. Sütür, stent ve iğne gibi yabancı cisimler mesane içerisinde taş oluşumu için odak oluşturabilmektedir. Bunlar gibi intrauterin kontraseptif araçlar da mesane içinde taş oluşumuna yol açabilmektedir. Burada intrauterin kontraseptif araç uygulanması sonrası 6. yılda suprapubik ağrı alt üriner system semptomları başlayan ve mesane içine migre olmuş intrauterin kontraseptif araç tespit edilen hastayı sunduk.

Anahtar Kelimeler

İntrauterin Kontraseptif Araç; Mesane Taşı; Göç

Abstract

Intrauterine contraceptive devices are being used in clinical practice since 1962. Due to their efficiency and low cost, intrauterine contraceptive devices are the most popular method of reversible contraception in developing countries. The incidence of migration of an intrauterine contraceptive device, and related uterine perforation ranges from 0.003% to 0.87%. Intrauterine contraceptive device may migrate into urinary bladder, appendix, rectum, colon, peritoneum, anterior abdominal wall or ovary. Foreign bodies like sutures, stents, and needles in the urinary bladder act as niduses for calculi formation. Intrauterine contraceptive device migrated into the bladder can also become a nidus for a stone formation. Herein we report about a case whose intrauterine contraceptive devices had migrated into the bladder, and presented with lower urinary tract symptoms and suprapubic discomfort 6 years after its insertion.

Keywords

Intrauterine Contraceptive Device; Bladder Stone; Migration

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Corresponding Author: Orhan Unal Zorba, Recep Tayyip Erdoğan Universitesi, Tip Fakultesi, Uroloji AD, Rize, Türkiye.
E-Mail: zorbaunal@gmail.com

Introduction

Intrauterine contraceptive devices (IUCDs) are being used in clinical practice since 1962. Due to their efficiency and low cost, IUCDs are the most popular method of reversible contraception in developing countries. The incidence of migration of an IUCD, and related uterine perforation ranges from 0.003% to 0.87% [1]. IUCD may migrate into urinary bladder, appendix, rectum, colon, peritoneum, anterior abdominal wall or ovary. To our knowledge there are about 76 cases in the world literature related to IUCDs that had migrated into the bladder.

Foreign bodies like sutures, stents, and needles in the urinary bladder act as niduses for calculi formation is an uncommon occurrence. IUCD migrated into the bladder can also become a nidus for a stone formation.

Herein we report about a case whose IUCD had migrated into the bladder, and presented with lower urinary tract symptoms (LUTS) and suprapubic discomfort 5 years after its insertion.

Case Report

A 46-year-old woman presented to our clinic with LUTS and recurrent urinary tract infection. She had an IUCD inserted 11 years ago in a family planning centre. However, she became pregnant 2 years later with the in situ IUCD. She went on to have a normal vaginal delivery and the postpartum examination revealed no evidence of the IUCD. She was told that her IUCD had "fallen and she did not recognize that".

Her complaints had persisted for 6 years, and she had gone to different centers for these 6 years, where multiple antibiotics had been prescribed. A T- type IUCD on the right side of the pelvis was seen on plain abdominal film and an opaque stone measuring 4× 3 cm in size was seen on the IUCD. Computerized tomography (CT) scan showed that a calcified object seen on plain abdominal film was partly intravesical and partly in the wall of the urinary bladder (Figure 1).

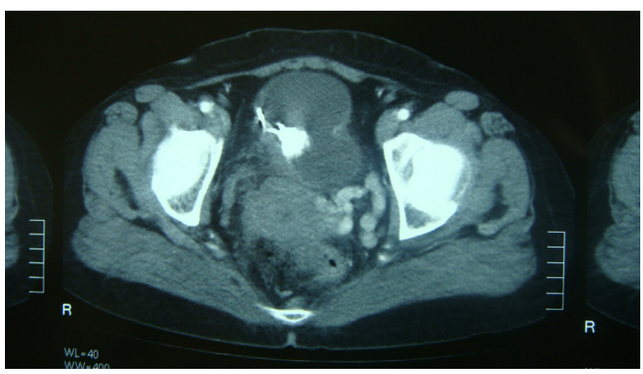

Figure 1: CT scan of the pelvis showing one limb of the IUCD embedded in the wall of the bladder, and its stem with a stone on projecting into the vesical lumen

Endoscopic intervention was planned. Cystoscopy confirmed the findings of CT scan. It was observed that the encrustrated IUCD was within the bladder. Grasper forceps was used to grab the embedded portion of the IUCD. IUCD was easily extracted from the bladder wall into the bladder lumen. The stone on the IUCD was successfully fragmented by pneumatic lithotripsy and the IUCD was removed as a whole unit. A Foley urinary indwelling catheter was inserted transurethrally, and it was removed on 7. postoperative day Postoperatively cystography was performed and no fistula was observed.

Discussion

Diagnosis of bladder stones, particularly in women who became pregnant in the presence of an IUCD, recurrent urinary tract infections and LUTS should suggest the migration of IUCD into the bladder.

Since bladder stones are unusual in women, their presence should raise the suspicion of intravesical foreign bodies. IUCD can act as a nidus of crystallization for bladder stones. Although urinary tract infection is common in women, recurrent infection or any irritating urinary symptoms unresponsive to medical treatment should rise the suspicion of a foreign body in the urinary system, especially when patients have a history of pelvic surgery or IUCD insertion.

Based on our knowledge, and also review of current literature, symptoms like lower abdominal pain, dysuria, and frequency after IUCD insertion have not emerged earlier than 1 year after insertion of an IUCD. Accordingly, in our case symptoms became apparent 5 years after implantation of an IUCD and 2 years after birth. It is hard to answer the question whether iatrogenic uterine perforation or migration of the device could be implicated in these cases.

To elucidate the etiology of the extrauterine IUCD possibly related to iatrogenic perforation or migration of IUCD; we searched the literature to determine the temporal association between the placement of IUCD and unexpected pregnancy While in one case pregnancy had been reported as early as 4 months after insertion of an IUCD (1), while in one case delivery had occurred 11 years after the IUCD insertion [2]. (Table 1) In our case delivery took place 3 years after insertion of IUCD.

Table 1. Initiation of the symptoms and delivery times after IUCD placement, NA: Not available

	Time interval between diagnosis and IUCD placement (years)	Delivery time after IUCD placement (years)	Syptoms after IUCD placement (years)
Al Awadi (1)	25	1	24
Chuang (3)	3	NA	2.5
Dar (4)	20	NA	NA
Istanbulloglu(5)	6	4	4.5
	14	1	NA
Mustafa (6)	12	2	12
Nouira(2)	10	NA	5
	5	NA	4.5
	9	3	6
	16	11	15
	6.5	NA	6
	4	NA	1

In cases reported in the literature, time interval between the onset of LUTS and the detection of an extrauterine IUCD often raise the question of whether iatrogenic uterine perforation or spontaneous migration of the device was responsible for extrauterine IUCD. Iatrogenic uterine perforation usually occurs at the time of IUCD insertion, but an IUCD may become stuck into the uterus and later be forced through the wall by spontaneous uterine contractions. Other mechanisms such as urinary bladder contractions or uterine atrophy may also play a significant role. Some case reports have indicated the initiation of symptoms

after menopause which strengthen the hypothesis of uterine atrophy as an etiologic factor [1,5]. In our case neither the patient was in menopause nor was uterine atrophy present, so uterine atrophy should not be the only culprit in the migration of IUCD. Irrespective of iatrogenic uterine perforation or migration of the device, it is obvious that IUCD eroded the bladder wall.

In our case the patient had become pregnant 2 years after insertion of an IUCD. She had LUTS 5 years after the insertion IUCD. Since 2 years had passed between insertion of and IUCD, and conception, these findings suggest us that IUCD spontaneously eroded the uterine wall rather than iatrogenic perforation We believe that in situ IUCD ensured contraception for 2 years, and after migration of the device conception had occurred.

Migration of IUCD is more frequent in women who delivered babies with IUCD in place. Shrinking of the uterus and thinning of the uterine wall in the postpartum and lactation periods because of hypoestrogenemia might lead to uterine perforation by IUCD [5,6].

These different latency times raise the question whether the device was in the uterus or outside the uterine cavity during conception. It is impossible to make an exact determination because conception can occur while IUCD is in the uterine cavity.

In the literature, the majority of the cases IUCD migration into bladder lumen occurred with copper-T devices [5-7]. There may be a design defect of copper-T IUCDs that facilitates its migration into the bladder in addition to other possible factors [1]. There is considerable debate about what should be done with an asymptomatic IUCD found in an extrauterine location. Some have argued that the device should be left alone and removed only if it causes symptoms. However, in our case if the patient had had a pelvic CT before the onset of urinary symptoms, then extrauterine or extravesical IUCD could be seen. We can't conclusively determine the etiologic factors of extrauterine IUCD such as iatrogenic perforation or migration. Besides, if the device migrated outside uterine cavity it can also migrate into adjacent tissues. We prefer surgical intervention rather than spending extra time on determining causative factors. Especially valid for copper-T IUCDs.

IUCD can be expelled without a patient's awareness. However when the IUCD string cannot be seen during vaginal examination, or when the patient had pregnancy after IUCD insertion, physician should suppose that IUCD may be migrated until it is proved otherwise. There may be an IUCD dislocation even in the presence of an IUCD string visible through the cervical os.

The first diagnostic procedure to evaluate the status of an IUCD is a KUB X-ray which shows whether the IUCD is within the the patient's body or not. X-ray films can also detect intravesical migration of an IUCD with stone formation.

Sonography can display whether an IUCD is properly placed inside the uterine cavity or not. However, sonography cannot precisely demonstrate the myometrial or bladder wall status, especially when the IUCD has completely migrated outside of the uterus. Noncontrast CT will be sufficient, and there is no need for further invasive diagnostic methods such as intravenous pyelography, cystography, or hysterography. CT can precisely depict the site of the dislocated IUD, anatomic association between the migrated IUD and organs involved, and the extent of bladder injury.

Several methods for removal of IUCD have been reported according to position and penetrance depth of the IUD in the bladder including cystoscopy, suprapubic cystotomy, open surgery and laparoscopy [1,3,4]. Endoscopic methods are efficient and safe for the treatment of such cases [2,5,6].

To conclude, IUCD placement should be performed by experienced doctors or under their supervision. However, migration of IUCD placed by gynecologists has been also reported [5]. The follow- up of IUCD's with ultrasonography immediately after its insertion and then at regular intervals is mandatory. Initial approach to patient with intravesical IUCD migration should be endoscopic.

Competing interests

The authors declare that they have no competing interests.

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