Case Report

Ureteric erosion and obstruction: A rare but dreaded complication of intrauterine contraceptive device

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Abstract

Though intrauterine contraceptive device (IUCD) is a safe and most frequently used long-term contraceptive method, it has some complications. Uterine perforation and intra-abdominal migration have been reported often, but a retroperitoneal migration is exceptional. Here, we are reporting an IUCD which perforated the uterus and migrated to the retroperitoneum; impinging into and obstructing left ureter causing severe hydroureteronephrosis due to the development of the left lower ureteric stricture.

Key Words: Hydroureteronephrosis, intrauterine contraceptive device, migration, ureteric stricture, uterine perforation

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INTRODUCTION

Intrauterine contraceptive device (IUCD) is one of the most frequently used contraceptive methods. Although it is generally a safe modality for a long-term contraception, still on occasions an IUCD can give rise to complications.[1] Uterine perforation is a rare complication, and such a perforated IUCD may migrate to any adjacent pelvic organ.[1,2] An injury or obstruction of the pelvic ureter and subsequent hydronephrosis is extremely rare but a dreaded complication of IUCD insertion.[3]

CASE REPORT

A 36-year-old woman referred with complaints of intermittent left flank pain and dysuria for the past 1 year with two recent episodes of hematuria in the last 7 days. She had a male child of 3 years and had regular menstrual history. On abdominal examination, there was suprapubic and left flank tenderness while vaginal examination was normal. Her investigations revealed RBCs and pus cells in urine and *Escherichia coli* on culture. Her ultrasonography (USG) was suggestive of the left side hydroureteronephrosis and a displaced IUCD in the bladder which was fixed at vesicoureteric junction (VUJ). On probing, again patient informed that she underwent an IUCD insertion 2 years back. She lost to follow-up and never tried to feel the strings per vagina. An intravenous urography (IVU) done that suggested left kidney was poorly excretory and left ureter was poorly traceable due to impinged IUCD [Figures 1 and 2]. Cystoscopy confirmed the perforated arm of IUCD in lower ureter just proximal to the left vesicoureteric junction (VUJ) [Figure 3]. There was complete obstruction on retrograde urography, and ureteroscope was not

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admissible beyond the perforated arm of IUCD. As it was not feasible to remove it endoscopically and there was high chance of concomitant injuries, exploratory laparotomy was done. It was a copper-containing IUCD (TCu 380A) [Figure 4] which was removed along with the strictured portion of the left lower ureter. After proper mobilization, uterus and bladder repaired separately with O'Conor technique and nonrefluxing suprahiatal left ureteric reimplantation done with paquin technique.

The postoperative period was uneventful, and the catheter was removed on the 10th day. Double-J stent removed after 4 weeks. The patient is symptom-free at present and has been asked for close follow-up.

Figure 1: Intravenous urography series film at 30 min showing an intrauterine contraceptive device in the left ureter line with no excretion of contrast in the left ureter, very much suggestive of obstructed the left renal unit

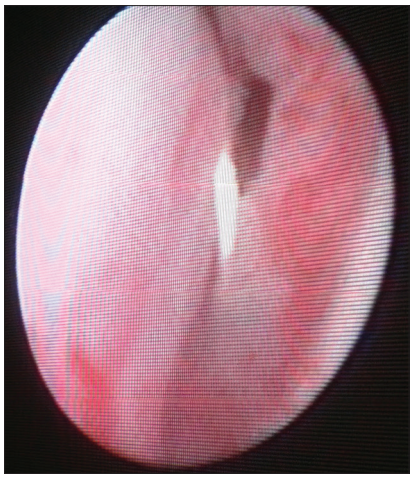

Figure 3: Cystoscopic view showing impinged arm of intrauterine contraceptive device perforating into the left lower ureter just proximal to the left vesicoureteric junction and peeping through it

DISCUSSION

IUCD is widely accepted contraceptive method among women for many years due to its efficacy, longevity, reversibility, and safety.[4] However, it may have some inherent complications, such as hemorrhage, hypermenorrhea, dysmenorrhea, pain, septic abortion, ectopic pregnancy, and pelvic inflammatory disease.[1,4,5] Being a foreign body, it can also dislocate, erode, and perforate uterus and can migrate extrauterine.[2] Uterine perforation is an uncommon but serious complication, occurring in up to one of the every 1000 cases.[6] It occurs primarily during insertion and depends on the time and technique of insertion, the type of IUCD, the skill of the physician, and the anatomy of the cervix and uterus.[5] Undetected extremely retroverted or retroflexed uterine position is the most common reason for perforation at the time of insertion. This risk

Figure 2: Delayed film of intravenous urography series showing appearance of some contrast in calyces though no contrast in the left pelvis and ureter, suggestive of obstructed left renal unit with poor and delayed function

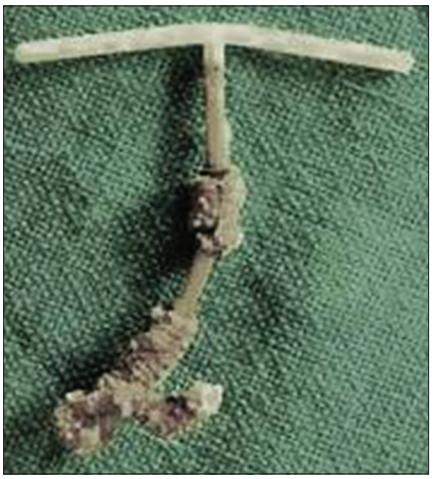

Figure 4: The retrieved intrauterine contraceptive device

increases, especially with conditions of myometrial weakness, such as during the puerperium, recent abortion, or mid-term pregnancy termination (MTP), following cesarean section, in sepsis and in multipara.[1,5,6] Perforation might be more frequent with copper IUCDs.[7] An erosion and secondary perforation can also occur at any time after insertion, by slow migration across the muscular wall of the uterus and bladder which can be augmented by spontaneous uterine contractions.[1,8]

Once perforated, IUCD may migrate to the nearby structures such as peritoneum, omentum, adnexa, colon, bladder, and appendix.[1,2,4,5] Intra-abdominal migration of the IUD may lead to more serious complications. Most frequently, the IUD is freely floating in the abdomen or pelvis, encased in adhesions, or adherent to bowel or omentum. Adhesion formation can lead to infertility, chronic pain, and intestinal obstruction.[2] Rarely, an intraperitoneal IUD can perforate adjacent structures, leading to peritonitis, fistulas, hemorrhage, encrustation, and bladder stone formation.[2,5]

Retroperitoneal migration is highly exceptional, and only a few cases are reported so far where it crossed the natural barrier of peritoneum,[3,9,10] infiltrating into retroperitoneal pelvic fat, causing retroperitoneal fibrosis, and encasement of pelvic ureters. Resulting ureteral obstruction may bring about ureterohydronephrosis, pyelonephritis, and renal calculi. The stricture formation warrants sometime ureteric reimplantation along with the removal of IUCD.[9] Timonen and Kurppa reported a case of ureteral stricture and obstructive uropathy following perforation of the uterus by an IUCD; that ultimately required a nephrectomy,[10] which fortunately did not happened in the present case. In fortunate patients where the pelvic ureter is not much fixed, such migration of IUCD causes only ureteral displacement.[11]

Mechanism of such intraperitoneal and retroperitoneal migration mostly remains obscure. Various theories have been proposed, including muscular activity, respiratory excursion, capillary action, electrolysis, gravitational forces, and freedom of motion of foreign body.[12] Symptoms may be vague abdominal or pelvic pain or vary according to the site of migration and organ of involvement. Sometimes, it may remain silent for many years.[5,8] The diagnosis in most of such cases are unpredicted and accidental and usually seen in patients who are lost to follow-up or poorly followed up after IUCD insertion. Hence, IUCDs should be examined periodically in follow-up visits after its insertion.[1,4,5] The recipients should also be trained to check the strings themselves and report whenever they missed to feel it. An ultrasound is a simple, rapid, and noninvasive imaging method to assess the position of the IUCD. Transvaginal USG provides the best view for locating the IUCD, but it restricts the space for its simultaneous removal.[1,2] All IUCDs are radioopaque; therefore, plain abdominal radiography, as well as computed tomography CT scan, may be used for detection and its exact dislocated position,[1,2] Magnetic resonance imaging is also not contraindicated in copper IUCDs.[13] Although the abdominal plain film may be sufficient for diagnosis in many cases, specialized imaging modalities such as hysterosalpingography and IVU (as in this case) are more informative regarding the position of an IUCD and any complication caused by its translocation.[14]

Once the diagnosis is made, the accepted treatment for displaced IUCDs, even in an asymptomatic patient is surgical removal to mitigate its putative risks and complications.[1,4,5,15] If the device is partially located in the endometrial cavity, hysteroscopy could be attempted for the removal. However, if the IUCD is totally perforated and is present in the abdominal cavity, the safest and most acceptable way to remove it is by laparoscopy.[15,16] Ureteric reimplantation is the most accepted management for lower ureteric injuries and strictures.[3,9] An open approach has been done in this patient to achieve a nonrefluxing vesicoureteric anastomosis.

CONCLUSION

An IUCD insertion should always be done by a trained person after a proper case selection and physical examination and should be avoided in early puerperium or following recent abortion, or MTP.[4] Sonographic reevaluation of the IUCD's position after 2–3 months is necessary.[2] Recipient women should also be informed about the potential complications and must be suggested for regular follow-up and self-check.[1,2] If the string is not found, abdominal radiography or USG should be done even in asymptomatic patients.[4] Any case of IUCD migration should be dealt on an urgent basis and it must be removed. Any patient who is developing hydronephrosis or hydroureteronephrosis following IUCD insertion must be searched for IUCD migration or fibrosis induced by IUCD.

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Conflicts of interest
There are no conflicts of interest.

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