Urology Case Reports 46 (2023) 102313

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: www.elsevier.com/locate/eucr

Endourological management of migrated intravesical intrauterine contraceptive device: Neglected case with stone formation

Jaisukh Kalathia [a,*], Devang Undaviya [a], Kaushal Patel [b], Arvind Valiya [c], Giriraj Vala [d]

[a] Department of Urology and Kidney Transplantation, Fortune Urology Clinic, India
[b] Department of Urology and Kidney Transplantation, Nephron Kidney Hospital, India
[c] Department of Urology and Kidney Transplantation, Valiya Urology Hospital, India
[d] Department of Urology and Kidney Transplantation, KIMS Hospital, India

A B S T R A C T

Intrauterine contraceptive device (IUD) has been associated with numerous complications such as pelvic discomfort, spontaneous expulsion, and infections. In rare instances, perforation and migration can occur if neglected. We present a rare of 25-year-old female in whom a neglected perforated IUD (Cu-T) after two years completely migrated into the urinary bladder leading to large stone formation. The migrated IUD with stone was successfully managed via minimally invasive endourological management.

1. Introduction

IUC (intrauterine contraceptive devices) is a commonly used worldwide for birth control method for its efficacy, reliability and cost-effectiveness since its introduction in 1970. The common complications of IUCD are irregular bleedings and premenstrual symptoms. But, rare complications such as expulsion and uterine perforations of IUCD can occur if not placed properly. Migration of ICU into surrounding organs of uterus such as omentum, rectum, sigmoid colon and bladder have been reported in the literature.[1] We report a case where IUD migrated into bladder with large stone formation and was managed endoscopically.

2. Case

A-27-year-old female presented with irritative and obstructive lower urinary tract symptoms (LUTS) for the past one year. She had a prior history of intrauterine contraceptive device placement before three years for birth control. As per the detailed history given, she had persistent lower abdomen discomfort after the IUD placement. Her radiological investigations at one year revealed IUD's complete perforation of uterine cavity and piercing into the bladder [Fig. 1]. But, she did not seek treatment for the same. Now, after three years her urinary symptoms worsened for which, she turned up for further urological management.

The ultrasonography of abdomen and pelvis revealed a large stone into the bladder. X-ray pelvis showed an encrusted IUD with large stone formation of approximate size 3 cm in the bladder region [Fig. 2]. Now, after three years, the IUD might have completely migrated into the bladder with large stone formation. The cystoscopy confirmed three large stones formation on the IUD. These stones were fragmented with the help of lithotripter and were evacuated along extraction of intact IUD. [Fig. 2]. The post-operative period was uneventful, and she was discharged the next day.

3. Discussion

Ideal contraceptive methods should be highly effective, safe, easy to use and requiring minimal maintenance and supervision. The temporary method of contraception includes barrier methods, Intrauterine devices (IUDs) and oral steroidal contraceptive pills; whereas permanent methods include vasectomy in males and tubal ligation in females.

IUDs have been one of the most popular method of contraception since the introduction of the Dalkon Shield in 1970. In the last couple of decades, there has been a significant change in its design and content to improve efficacy without increasing the adverse effects. It may be non-medicated as Lippes loop or medicated (bioactive) by incorporating a metal copper in devices like Cu T. The mode of action of IUDs are not clear yet but probable factors such as biochemical and histological changes it produces in the endometrium may be responsible.

The common complications associated with IUDs are pelvic

* Corresponding author.
E-mail addresses: jaisukh2010@yahoo.com (J. Kalathia), devangsoniuc@gmail.com (D. Undaviya), drkslpatel@gmail.com (K. Patel), drarvind1481@gmail.com (A. Valiya), girirajvala83@gmail.com (G. Vala).

https://doi.org/10.1016/j.eucr.2022.102313
Received 12 December 2022; Accepted 31 December 2022
Available online 3 January 2023

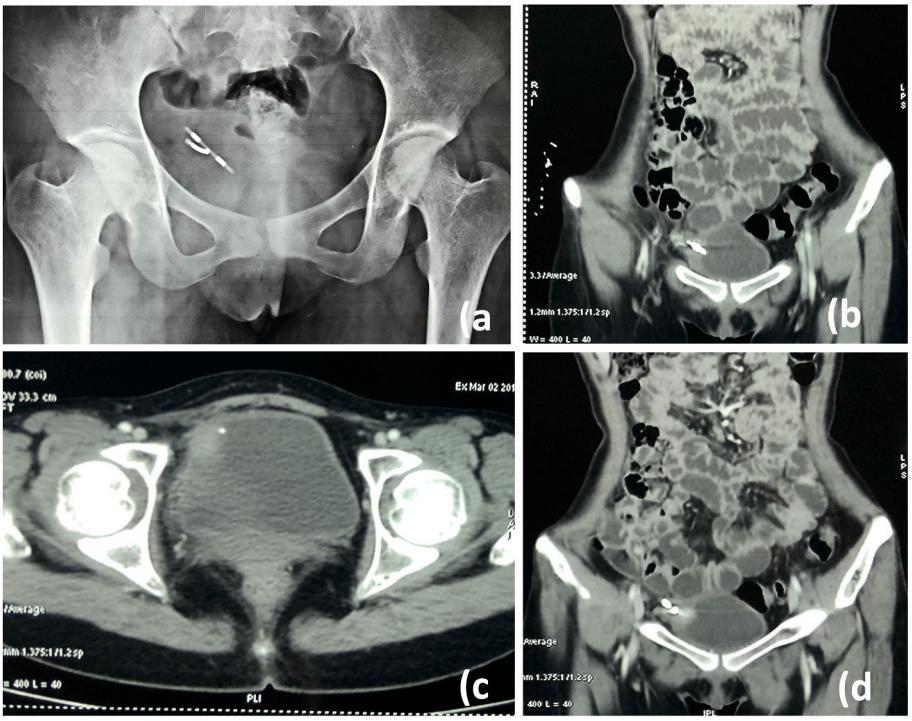

Fig. 1. a) X-ray pelvis showing IUD b,c,d) CT-scan revealing IUD perforating uterine cavity and piercing into the urinary bladder.

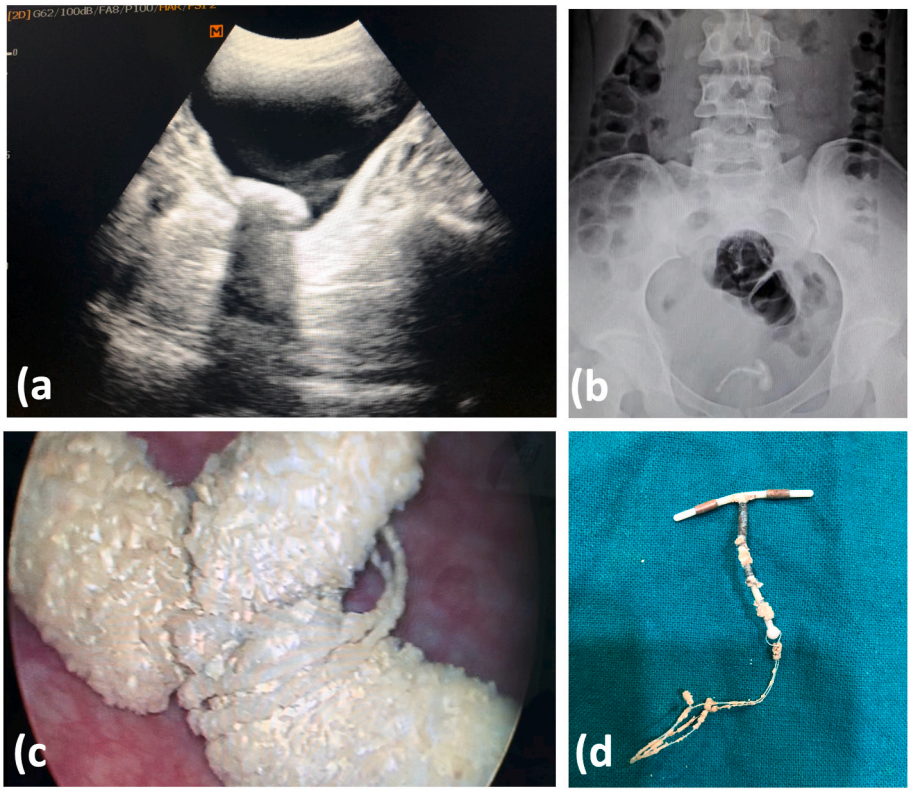

Fig. 2. a) Ultrasonography shows large stone in the urinary bladder b) X-ray KUB shows encrusted IUD with stoneformation c) Cystoscopy showing IUD with stone formation d) Extracted IUD.

discomfort, spontaneous expulsion, infections and abnormal uterine bleeding. Some of the uncommon complications of IUD are perforation and migration. The perforation of IUD may be partial or complete. In partial perforation, some part of IUD is retained inside the uterine wall whereas in complete perforation IUD may be found in the surrounding cavity or it may be embedded in nearby structures as seen at one year in our patient. Some of the risk factors responsible for uterine perforation are uterine thickness, uterine consistency, time of insertion, previous

pelvic surgeries and applicator's experience and knowledge.

These perforated IUD tend to completely migrate into surrounding organs probably due to the uterine contractions, sexual activity, intestinal motility and peritoneal fluid moment. Anatomically, the uterus lies in anteverted and anteflexed position and in close proximity to the urinary bladder. Therefore, there is a high propensity of migration to the bladder. Many reports of migration of IUD in urinary bladder had been reported in the literature.[2] Other sites of IUD migration reported in the literature are omentum (26.7%), Douglas pouch (21.5%), large bowel (10.4%), Broad ligament (6.7%), free within the abdomen (5.2%), adhesion to ileal serosa (4.4%), or to Large bowel serosa (3.7%) and mesentery (3%).[3]

Migrated IUD acts as foreign body in bladder and often cause both obstructive and irritative lower urinary symptoms. The development of urinary symptoms can occur as early as 3 months to as long as 5 years after insertion as reported in eight cases series of intravesical IUD migration by Dietrich in 1992.[4] Also, there is increased incidence of recurrent urinary tract infections in these patients. These migrated IUD acts as a nidus for encrustation eventually leading to calculus formation which is independent of the duration in the bladder.[5]

Radiological investigations such as ultrasonography and plain X-ray KUB (kidney-ureter-bladder) are useful methods to detect IUD migration as well as encrustation of calculi. CT -Scan (Computed tomography) and Magnetic resonance imaging (MRI) are further imaging modality for demonstrating IUD relation with adjacent structures and delineating fistulous tracts. In our case, at one year IUD can be clearly seen on CT-scan perforating uterine cavity and piercing into the urinary bladder.

In the modern era, minimally invasive endourological management is the treatment of choice for removal of IUD and bladder stones in the same sitting. Because of the less morbidity and high success rates endourological management is preferred over the conventional open approach. The encrusted calculi on the IUD can be fragmented with the help of energy source pneumatic lithotripter or the Holmium laser under cystoscopic guidance. The fragments are later evacuated along with extraction of intact IUD as we did in our case.

4. Conclusion

Chronic lower urinary tract symptoms with an unretrieved IUD history must be evaluated for possible uterine perforation or migration of IUD into the urinary bladder. Endourological management should be the treatment of choice in the encrusted migrated IUD with large stone formation.

Declaration of competing interest

Nil.

References

1. Kassab B, Audra P. The migrating intrauterine device. Case report and review of the literature. *Contracept Fertil Sex*. 1999;27(10):696–700.
2. Esfahani MR, Abdar A. Unusal migration of intrauterine device with stone formation. *Urol J*. 2007;4(1), 49-15.
3. Gill RS, Mok D, Hudson M, Shi X, Birch DW, Karmali S. Laparoscopic removal of an intra-abdominal intrauterine device: case and symptomatic review. *Contraception*. 2021;85:15–18.
4. Dietrick DD, Issa MM, Kabalin JN, Bassett JB. Intravesical migration of intrauterine device. *J Urol*. 1992;147:132–134.
5. Tosun M, Celik H, Yavuz E, Cetinkaya MB. Intravesical migration of an intrauterine device detected in a pregnant woman. *Can Urol Assoc J*. 2010;4:E141–E143.