UROLOGICAL ASSOCIATION OF KERALA
NEWS LETTER OCTOBER 2023

Title:
Ectopic intrauterine device with a giant bladder stone



Dr Mebin Baby Thomas
Department of Urology,
Pushpagiri Institute of
Medical Sciences and Research Centre,
Tiruvalla

Dr. Nebu Issac Mammen, Dr. Maymol Abraham, Dr. Anusha Susan Varghese

Affiliation of authors: Department of Urology, Pushpagiri Institute of Medical Sciences and Research Centre, Tiruvalla

Abstract

Intrauterine devices (IUD) are a widespread form of reversible contraception. Rarely they can perforate into the bladder and lead to stone formation. Presentation is usually insidious and a high index of suspicion is required. Treatment must include complete removal of the stone and IUD. Keywords: IUD perforation, Bladder stone, IUD calculus

Introduction

Intrauterine devices are a common contraceptive device for women of child bearing age. 1 Uterine perforation is one of the least common but most serious complication associated with IUD. 2 The risk increases especially during puerperium when the uterus is small and its wall is thin. 3 Less than 30 cases has been reported in the literature of migration of IUD into the bladder with stone formation and the mean stone size was less than 2 cm. 4–6 Here we report a case in which a large bladder ston e was seen attached to an IUD.

Case report

A 54-year-old female presented with complaints of poor urinary stream and lower abdominal pain in the past 3 years. On evaluation computerized tomography (CT) scan showed few lamellated calculus in the bladder, largest of size 7.7x7.6 cm (875HU) and another 2.8X2.4 cm calculus, along with a T-shaped foreign body (Figure 1). Few other calculi were also seen (3-6mm). There was associated bilateral mild hydroureteronephrosis.

However, there was no renal or ureteric calculi. Hence, we proceeded with open cystolithotomy. Intraoperatively a large 8x6 cm calculus was seen in the bladder adherent to the posterolateral wall where remnants of an IUD were found incarcerated into part of the stone (Figure 2). The attachment of IUD to the bladder was completely detached using sharp dissection without causing a perforation. All the stones were removed and bladder closed in two layers. Postoperatively wound healed well and a cystogram showed no leakage of contrast.

Discussion

Intrauterine devices are a highly effective reversible contraceptive device due to its ease of insertion, long duration of effectiveness and lack of systemic side effects. 7 The major complications are perforation and migration to other organs. The overall incidence of perforation is 0.87 per 1000 cases. 6 Perforation can be complete or partial. In partial perforation the IUD erodes into and gets embedded within the walls of the uterus. In complete perforation IUD erodes through all layers of the uterus and lies within the peritoneum or enveloped within the omentum or rarely within in the broad ligament or other extra-uterine locations. 3 Mechanism of perforation may be primary if it occurs at time of insertion or secondary if it is by slow migration through the uterine wall. Factors increasing the likelihood of uterine perforation include insertion of the device by inexperienced persons, inappropriate positioning of the IUD, susceptible uterine wall because of multiparity and a recent abortion or pregnancy.

Bladder stones are uncommon in females and their presence should raise suspicion of a foreign body as they can act as a nidus for stone formation. 6 Displacement of an IUD must be considered when IUD strings are not observed in the vagina during examination and ultrasonography fails to show them in the endometrial cavity. The clinical presentation of IUD migration into bladder is usually insidious and can remain undiagnosed for a long period. Common symptoms are frequency, urgency, dysuria, hematuria and lower abdominal pain. 1,2 Once migrated the IUD becomes either partially or totally encrusted.

In general, an IUD consists of a T-shaped polyethylene frame with a copper wire or a levonorgestrel containing collar around the stem. A polyethylene monofilament string is attached to the base of the stem. The copper wire is radiopaque and hyperechoic at ultrasonography. The frame of the levonorgestrel-releasing IUD contains barium sulfate, which aids in visualization at radiography but not at US.

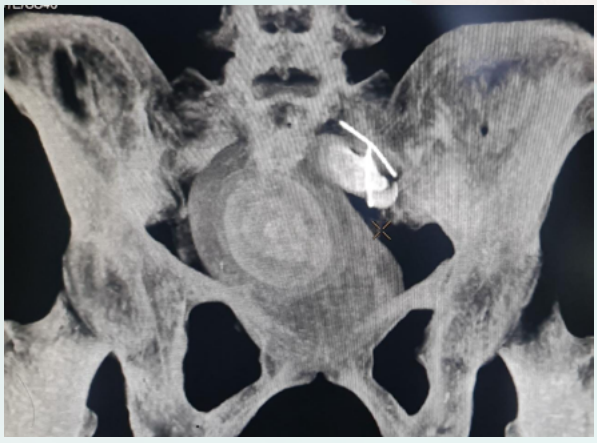


Figure 1



Figure 2

Pelvic US should be the initial imaging study. A definite diagnosis of complete perforation can be made at conventional radiography if the IUD is located above the pelvic brim, far lateral (on an anteroposterior view) or far anterior or posterior (on a lateral view).

Rotation of the IUD of 90° or 180° at conventional radiography is a less specific indication of complete perforation. 8 CT provides better delineation and also help in evaluating further complications in patients with complete perforation. MR imaging is not routinely used to evaluate an IUD but can be helpful in localizing the IUD and evaluating its relationship to the uterus. 8 Cystoscopy can detect the intravesical IUD and help in more effectively planning the optimal approach for removal. It can also detect adherence of the IUD to the bladder wall.

Treatment can be done via cystoscopy or suprapubic approaches. Small stones can be managed cystoscopically along with complete removal of the IUD. Large stones however require either open or laparoscopic retrieval, wherein the bladder needs to be opened followed by complete removal of stone and the IUD. However, all cases must be carefully evaluated to rule out possibility of a Vesico-uterine fistula.

Conclusion

Intrauterine devices are a widespread form of reversible contraception. Rarely they can perforate into the bladder and lead to stone formation. Presentation is usually insidious and a high index of suspicion is required. Imaging and cystoscopy provide strong diagnostic support and also play a key role in selecting the surgical methods and approaches. Treatment must include complete removal of the stone and IUD, via endoscopic or open or laparoscopic approaches.

References

1. Xiong B-J, Tao G-J, Jiang D. Bladder-embedded ectopic intrauterine device with calculus. OpenMed. 2020 Jan 1;15(1):501–7.
2. Demirci D, Ekmekçioğlu O, Demirtaş A, Gülmez I. Big bladder stones around an intravesical migrated intrauterine device. Int Urol Nephrol. 2003;35(4):495–6.
3. Atakan rfan H, Kaplan M, Ertrk E. Intravesical migration of intrauterine device resulting in stone formation. Urology. 2002 Nov;60(5):911.
4. Nouioui MA, Taktak T, Mokadem S, Mediouni H, Khiari R, Ghozzi S. A Mislocated Intrauterine Device Migrating to the Urinary Bladder: An Uncommon Complication Leading to Stone Formation. Case Rep Urol. 2020 Apr 7;2020:e2091915.
5. Dietrick DD, Issa MM, Kabalin JN, Bassett JB. Intravesical migration of intrauterine device. J Urol. 1992 Jan;147(1):132–4.
6. Shin DG, Kim TN, Lee W. Intrauterine device embedded into the bladder wall with stone formation: laparoscopic removal is a minimally invasive alternative to open surgery. Int Urogynecology J. 2012 Aug 1;23(8):1129–31.
7. Kaplanoğlu M, Bülbül M, Yüce T, Kaplanoğlu D, Aban M. Mislocated extrauterine intrauterine devices: Diagnosis and surgical management. J Turk Ger Gynecol Assoc. 2015 Jun 1;16(2):91–5.
8. Boortz HE, Margolis DJA, Ragavendra N, Patel MK, Kadell BM. Migration of intrauterine devices: radiologic findings and implications for patient care. Radiogr Rev Publ Radiol Soc N Am Inc. 2012 Apr;32(2):335–52.
9. Zakin D. Perforation of the bladder by the intrauterine device. Obstet Gynecol Surv. 1984 Feb;39(2):59–66.

Figure legends:

Figure 1 – 3D reconstruction CT image showing large vesical calculus with an IUD

Figure 2 – Large bladder stone with an incarcerated Intrauterine device