

## Intrauterine Device in The Bladder: A Rare Case Report

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**Introduction.** Uterine perforation and migration of intrauterine device (IUD) are rare complications but serious. There are several risk factors, such as consistency and thickness of the uterine wall, length of time of insertion, pelvic surgery history, and installer experience and knowledge. The IUD can migrate to the peritoneal cavity and then cause perforation of the rectum, appendix, or stones in the bladder. Although the migration of the IUD to the bladder can be asymptomatic, removing procedure should be taken as soon as possible.

**Case.** A 74-year-old woman came to the hospital with a complaint of painful urination two years prior to admission. The patient was diagnosed with a recurrent urinary tract infection (rUTI) over the past two years. For the last two months, the patient complained of lower abdominal pain and occasional hematuria. The patient has a 50-year history of IUD insertion. On ultrasound imaging examination, stones were obtained in the bladder by 2.7cm, in cystoscopy procedures confirmed the diagnosis of IUD migration to the bladder with stone formation. Cystolasertripsy was performed to destroy stones and evacuate stones and IUDs from the bladder. The procedure went off without a hitch. After a postoperative evaluation revealed no complications.

**Conclusions.** Migration of IUD can be found in the bladder and evaluation of the condition of the patient by radiological examination is necessary. An endoscopic approach could be performed to evacuate the IUD from the bladder.

**Keywords:** bladder stone, cystoscopy, intrauterine device, migration

### Introduction

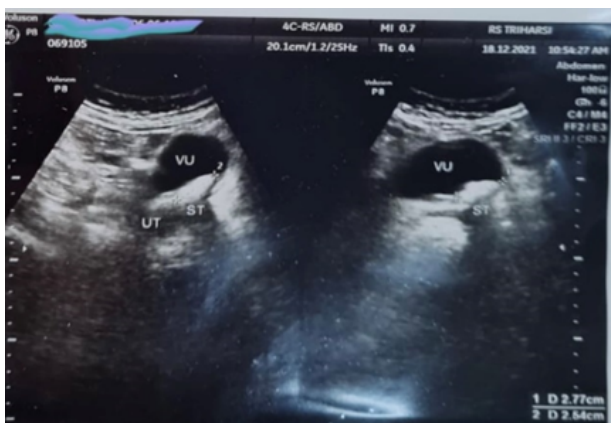
Intrauterine Conceptive Devices (IUCD) or commonly known as IUD (intrauterine device), is the most common method of contraception that is widely used worldwide as one of the primary contraceptive methods. IUDs provide highly effective, long-term, reversible contraception and are safe. Unlike other methods, IUD has an effectiveness that is comparable to that of female sterilization [1]. IUD insertion has a low complication rate. Usually, the complications that occur are relatively mild. The most common complications of the IUD are irregular bleeding and premenstrual symptoms. Rare and serious complications such as expulsion and perforation of the uterus can occur when the IUD is not placed properly. After perforation of the uterus, the IUD can migrate into the organs around the uterus, such as the omentum, rectum, sigmoid colon, and rarely occurs penetrating the bladder [2-4].

The risk factors for uterine perforation are uterine consistency and thickness, time of insertion, previous pelvic surgeries, and the applicator's experience and knowledge [2]. As one of the most common methods of contraceptive that is widely used, the success rate of installation and as a contraceptive is very high, but until 2006, there were reported 31 cases of IUD migration into the bladder in the world, however currently, in Indonesia, there are no data available regarding the incident of IUD migration into the bladder [5]. The IUD migration into the uterus is a rare complication. The case report of this complication has not previously been reported at the Department of Urology, Triharsi Hospital, Surakarta. This case was very interesting. We report a female patient where IUD migrated into the bladder with stone formation. This patient was asymptomatic for over 48 years with a 50-year forgotten period of IUD insertion, which is the longest duration in literature.

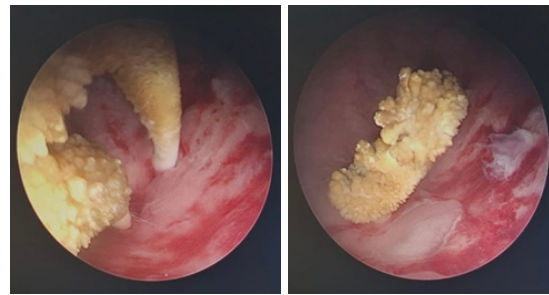
## Case Report

A 74-year-old female (para gravida-3; living-3; abortion-0; IUD-1) presented to our hospital with complaints of painful urination two years prior to admission. After a few months, the complaints worsened, and a recurrent urinary tract infection (rUTI) was diagnosed. In the last two months, the patient has also complained of lower abdominal pain and occasional hematuria. There was a history of IUD insertion after three pregnancies 50 years back. In the third pregnancy, a cesarean section is performed. There is no abortion history in this patient.

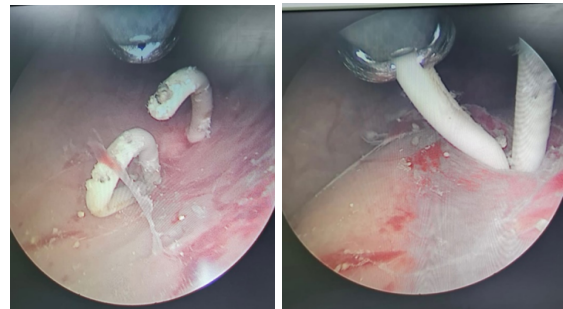
A large 2.7 cm bladder calculus was discovered using ultrasound imaging (Fig. 1). The patient underwent an endoscopic procedure, and cystoscopy confirmed the diagnosis of IUD migration in the bladder with stone formation (Fig. 2). Under spinal anesthesia, cystolasertripsy was performed, and the stone was managed with a pneumatic lithotripter. Fragments were extracted completely. The IUD was gently extracted through the cystoscope after being carefully grasped with forceps (Fig. 3, Fig. 4). The procedure went off without a hitch. After a postoperative evaluation revealed no complications, the patient was discharged two days later.



**Figure 1.** Ultrasound showed a 27 mm stone in the bladder



**Figure 2.** Cystoscopy showed a stone at the body of the Intrauterine device (IUD).



**Figure 3.** Intrauterine device (IUD) grasped with forceps



**Figure 4.** Spiral Intrauterine device completely extracted and stone fragments after endoscopic procedure

## Discussion

In developing countries, contraceptives are used to prevent unwanted pregnancies in women of productive age. IUD is the most widely used reversible contraception in the world. This method is highly effective, long-term, and safe.<sup>1</sup> Based on the Indonesia Demographic and Health Survey (IDHS) 2017, 64% of married women use contraceptive methods, implants and IUDs are each used by 5% of women [6]. Placement of an IUD in the uterus is usually a simple and safe gynecological procedure, but as a foreign body, it may lead to complications. However, these are relatively uncommon but can be serious. Pelvic discomfort, infections, spontaneous expulsion, and abnormal uterine bleeding are the common complication associated with IUD insertion. The uncommon but one of the most serious complications is uterine perforation, which can lead to a lost IUD or migration of IUDs into surrounding organs [2][4]. The incidence of IUD causing uterine perforation and extrauterine migration is around 1.2 to 1.6/1000 IUD insertions [7]. The risk factors for uterine perforation are uterine consistency and thickness, time of insertion, previous pelvic surgeries, and the applicator's experienced and knowledge [2]. In other literature, it is stated that if IUD is not removed on time may cause complications like menorrhagia, pelvic pain, infection, uterine perforation, and migration in the peritoneal cavity into the pouch of Douglas, perforating rectum, appendix, and bladder causing bladder stone [8]. The uterine wall is thinner and softer during the puerperium and lactation period, so the probability of IUD migration is the greatest. However, in this patient, she cannot remember with certainty whether the IUD insertion was done in both periods or not. The previous history of cesarean section is one of the risk factors. However, our patient had no history of cesarean section. This is similar to a previous case report reported by Liu G et al., where both of the patients had no history of cesarean section [8].

There are two mechanisms of uterine perforation, and both can lead to serious complications. Immediate traumatic perforation or primary perforation may occur during the insertion of the IUD, typically associated with severe abdominal pain; the second is a secondary perforation which is a delayed event caused by gradual erosion through the myometrium [4][7]. Once the perforation of the uterine wall occurs, there is a possibility of IUDs migration to the neighboring organs from the uterus, such as the omentum, bladder, rectosigmoid colon, small

bowel, iliac vein, and peritoneum but also rare complication. Perforation may occur long after the insertion, local inflammation associated with uterine contraction enables the migration of IUD [3].

Long-standing foreign bodies in the bladder, like the migration of IUD into the bladder, can cause secondary stone formation [9]. In the present case, the patient was asymptomatic for over 48 years with a 50-year forgotten period which is the longest duration in literature. Mahajan et al., reported a patient with a 31-year forgotten period of IUD insertion. Long-standing IUD can wander and cause endometrial changes and glandular hyperplasia. IUD should be removed or replaced not later than four years from the date of insertion [10]. In this patient, the IUD insertion was forgotten for over 50 years, and the IUD can migrate due to uterine perforation or because of an inflammatory reaction. Due to the anteverted and anteflexed position of the uterus, it lies in close proximity to the bladder, with higher chances of migration to the bladder [10].

IUD migration in the bladder can be totally asymptomatic or can present with lower urinary tract symptoms (LUTS) like dysuria, frequency, retention of urine, haematuria, and fever due to infection. Mahajan et al., reported the patient was asymptomatic for over 31 years, then the patient complained of dysuria, a sense of incomplete emptying of the bladder, lower abdominal pain, and occasional hematuria in the last month [10]. Gharby et al., has been reported a 62-year-old woman presented with intermittent severe lower abdominal pain, dysuria, and intermittent hematuria for six months with a medical history of insertion of an IUD inserted nine years ago [3]. Liu G et al., was reported a 37-year-old female presented LUTS for a year, including urinary frequency, urgency, and hematuria, with a history of an IUD insertion nine years ago in the local hospital [8]. It is similar to our patient, that has also complained the LUTS for two years prior to admission, and in the last two months, the patient has also complained of lower abdominal pain and occasional hematuria after being asymptomatic for over 48 years. In another case report, Kalathia et al., was reported a patient with persistent lower abdominal discomfort after the IUD placement, radiological examination revealed the IUD's complete perforation of the uterine cavity and piercing into the bladder, but the patient didn't seek any treatment. For the past year, the patient presented with irritative and obstructive LUTS [2]. The majority of the patient with urinary symptoms or LUTS or recurrent urinary tract infections are treated for urinary tract infection,

thereby delaying the diagnosis, especially in a patient with a history of unretrieved IUD for more than four years or a history of disappearance of IUD should be suspected of IUD migration into the bladder. The diagnosis can be made on a simple investigation like ultrasonography and Kidney, Ureter and Bladder (KUB) X-ray. Cystoscopy is the most reliable diagnostic method. In this case, the patient was diagnosed with recurrent urinary tract infections for two years. After the patient underwent radiological examination using ultrasound imaging, a 2.7 cm bladder calculus was discovered, and cystoscopy confirmed the diagnosis of IUD migration in the bladder with stone formation.

Endoscopic or surgical incision of the bladder can be performed for IUD extraction [3][11-12]. The World Health Organization recommends removing the migrated device as soon as possible, and surgical removal should be considered even in asymptomatic patients once it has migrated out of the uterus [4]. In the literature, most of the cases of bladder stones with IUD were treated by an open surgical approach [13]. But in the modern era, the minimally invasive procedure is the treatment of choice for the removal of IUD and bladder stone. The recommendation method from the World Health Organization is to use minimal invasive methods if possible [4]. The stone was fragmented with a pneumatic lithotripter under cystoscopic guidance. The fragments are later evacuated along with the extraction of intact IUD was done by Kalathia et al., [2] The same approach was done by Mahajan et al., despite large stone, non-mobile calculus, an endoscopic approach by performing cystolithotripsy along with the extraction of fully intact IUD as we did in our case.

## Conclusion

Chronic lower urinary tract symptoms or recurrent urinary tract infections with an unretrieved intrauterine contraceptive device must be evaluated for possible uterine perforation or migration of IUD into neighboring organs like the bladder, especially in symptomatic patients such as lower abdominal pain or hematuria. Simple radiological examinations such as ultrasonography and plain x-ray KUB can be performed to detect IUD migration. To remove the IUD from the bladder, an endoscopic approach could be used. It is necessary to evaluate the location of the IUD after installation and remove or replace the IUD not later than four years after the date of the insertion to prevent further patient complications.

## Conflict of Interest

The authors declare that they have no conflict of interests.

## References

- [1] Suantari D. Determinants of Intrauterine Device Use in Indonesia: Analysis of the Indonesia Demographic and Health Survey for 2002-2012. *Journal of International Dental & Medical Research*. 2019;12(1).
- [2] Kalathia J, Undaviya D, Patel K, Valiya A, Vala G. Endourological management of migrated intravesical intrauterine contraceptive device: Neglected case with stone formation. *Urol Case Rep*. 2023;102313.
- [3] Gharbi M, Chakroun M, Chaker K, Mokadem S, Ayed H, Chebil M. Intravesical migration of intrauterine device resulting in stone formation: About a case report. *Urol Case Rep*. 2019 Mar;23:65–6.
- [4] Cheung ML, Rezai S, Jackman JM, Patel ND, Bernaba BZ, Hakimian O, et al. Retained Intrauterine Device (IUD): Triple Case Report and Review of the Literature. *Case Rep Obstet Gynecol*. 2018 Dec 5;2018:1–8.
- [5] Wijaya MP, Seputra KP, Daryanto B, Budaya TN. Calculus Formation in Bladder from Migrated Intrauterine Devices. *Jurnal Kedokteran Brawijaya*. 2022 Nov 4;138–41.
- [6] Statistics Indonesia (Badan Pusat Statistik-BPS), National Population And Family Planning Board (BKKBN), Kementerian Kesehatan (Kemenkes-MOH), ICF International. *Indonesia Demographic And Health Survey 2017*. Jakarta; 2018.
- [7] Rowlands S, Oloto E, Horwell D. Intrauterine devices and risk of uterine perforation: current perspectives. *Open Access J Contracept*. 2016 Mar;19.
- [8] Liu G, Li F, Ao M, Huang G. Intrauterine devices migrated into the bladder: two case reports and literature review. *BMC Womens Health*. 2021 Dec 16;21(1):301.
- [9] Nouioui MA, Taktak T, Mokadem S, Mediouni H, Khiari R, Ghazzi S. A Mislocated Intrauterine Device Migrating to the Urinary Bladder: An Uncommon Complication Leading to Stone Formation. *Case Rep Urol*. 2020 Apr 7;2020:1–4.
- [10] Mahajan AD, Mahajan SA. Intravesical Migration of the Longest Forgotten Intrauterine Contraceptive Device with Secondary Vesicolithiasis in a 70-Year-Old

Female: A Rare Case Report. Journal Of Clinical And Diagnostic Research. 2022;

- [11] Sano M, Nemoto K, Miura T, Suzuki Y. Endoscopic Treatment of Intrauterine Device Migration into the Bladder with Stone Formation. J Endourol Case Rep. 2017 Dec;3(1):105–7.
- [12] Paré AK, Ouattara A, Yé D, Kabré B, Bako A, Abubakar BM, et al. Management of Intrauterine Device Migrated into the Bladder: A Case Report and Literature Review. Case Rep Urol. 2020 Oct 31;2020:1–4.
- [13] Jamburaj A, Darlington D, Chinnathambi J. An Unusual Cause of Vesical Calculi. Cureus. 2020 Jan 19