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Migration of an Intrauterine Device (IUD) into the Bladder: A Case Report

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Introduction. Intrauterine device migration, a rare complication, refers to the movement of the intrauterine device to unintended locations, including the bladder. The following paper presents a case study illustrating intrauterine device migration into the bladder.
Case. A 45-year-old woman, who has been using an intrauterine device for 15 months, was referred from the public health centre because the intrauterine device thread was not found. She has been experiencing pain after urination for a week that hasn't improved with medication. During a gynecological examination, no thread was found. An abdominal ultrasound examination revealed the intrauterine device was located in the bladder.
Conclusion. The migration of an intrauterine device into the bladder is a rare complication that requires careful monitoring. Intrauterine device users with persistent urinary tract infection symptoms that do not improve should consider this possibility. Proper insertion procedures and regular placement assessments are essential.

Keywords: bladder, cystoscopy, intrauterine device, migration, uterine perforation

Introduction

Intrauterine Devices (IUD) is the most common method of reversible contraception that is used by more than 150 million women around the world, due to its efficacy, safety and low cost [1]. However, the use of IUD is not free from complications, such as pelvic pain, bleeding, spotting, increased risk of Pelvic Inflammatory Disease (PID), unexpected pregnancies, and uterine perforation that may result in IUD migration. Perforations may occur either immediately by improper insertion, or in a period of time after insertion by device migration [1]. Uterine perforation by IUD is reported at an incidence of 1–3 per 1000 insertions [2]. We report a case of a complete IUD migration into the bladder in a patient with irritative lower urinary tract symptoms. This case was interesting since the patient reported symptoms only a week before the IUD was discovered in the bladder and 15 months after the IUD insertion. This case also demonstrates the importance of routine evaluation for IUD use.

Case Report

A 45-year-old woman came to the urology polyclinic at Jombang Regional Hospital, consulted by the gynecology and obstetric polyclinic with ultrasound results of IUD in the bladder. Previously, the patient had IUD inserted at a public health center in December 2022 and later went to public health center in March 2024 with chief complaint pain after urinating. In the public health center, the IUD thread was not found through gynecological examination, therefore she was referred to gynecology and obstetrics polyclinic in Jombang Regional Hospital. There were no complaints of abdominal pain, hematuria, fever, nausea, vomiting, and stone expulsion. The complaint did not improve with antibiotics and painkillers.

The patient admitted she felt pain after urinating just a week before the IUD was discovered in the bladder. The patient had never experienced the same complaint before. She didn't have any particular symptoms after IUD insertion 15 months ago, just minimal pain and no record of abnormal bleeding. The patient had a history of uterine tumors and had undergone surgery 22 years ago in Jombang Regional Hospital, but the definitive diagnosis and the surgery procedure is

not known, since the medical record wasn't found. The patient had been pregnant three times, the first pregnancy was miscarried when she was 2 months pregnant, while in the second and third pregnancies the patient gave birth spontaneously.

In physical examination, vital signs were within normal limits but there was suprapubic tenderness. Complete blood examination results were normal. On abdominal ultrasound, a retroflexed and normal size uterus was recognized. Adnexa and parametrium showed no abnormalities and IUD was visible in the bladder (Fig. 1). Cystoscopy showed the distal tip of the IUD was attached to the right lateral wall of the bladder and there was a crust on the proximal end of the IUD (Fig. 2). The IUD was successfully removed (Fig. 3) with minimal bleeding and no complications.

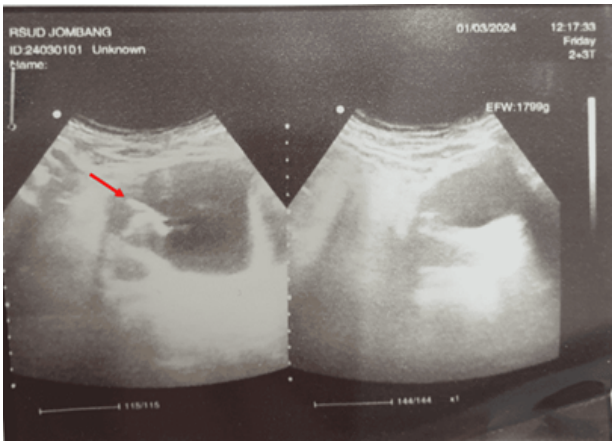

Figure 1. Hyperechoic image of IUD in the bladder (arrow)

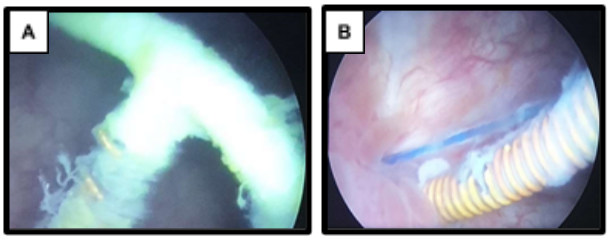

Figure 2. Cystoscopic vision of IUD in the bladder; (A) Encrustation on the proximal end of the IUD, (B) The distal tip of the IUD was attached to the right lateral wall of the bladder

Figure 3. IUD was completely extracted

Discussion

Intrauterine Device (IUD) is a long-acting contraceptive method that is widely used because of its high effectiveness and reversibility. IUD offers 98 – 99% success rate in preventing pregnancy. The two most often utilized types of IUD are copper intrauterine device (Cu-IUD) and levonorgestrel intrauterine device (LNG-IUD). The copper IUD is effective for up to 10 years, while the levonorgestrel IUD is effective for up to 5 years. Possible complications of IUD including infection, abnormal bleeding, pain after insertion, expulsion, and uterine perforation [3].

Migration of the IUD to the periuterine area is quite rare. The exact process underlying the IUD migration from the uterus has not yet been determined. The bladder is one of the most prevalent areas for IUD migration. A systematic review study of 165 cases reported the locations of IUD migration, including intestine (32%), bladder (24%), omentum (12%), myometrium (10%), lateral pelvic wall (8%), Douglas cavity (6%), abdomen (5%), vaginal wall (3%), ovaries (2%), gastric (2%), parametrium (2%), ureter (2%), diaphragm (1%), and ovarian tubes (1%) [4]. Another study reported from a total of 200 cases IUD migration, almost half of cases are migration into the bladder [5].

The most common cause of IUD migration is uterine perforation, and the majority is caused by traumatic perforation that occurs during insertion [6]. The incidence of uterine perforation is estimated at 0.3-2.6 per 1000 insertions for LNG-IUD and 0.3-2.2 per 1000 insertions for Cu-IUD [7]. There are two primary mechanisms of uterine perforation. First, direct or "traumatic" perforation which occurs during insertion. Second, spontaneous perforation that occurs afterwards due to gradual erosion of the myometrium [2].

Factors that can cause direct traumatic perforation of the uterus are pressure when

inserting the IUD, size of the uterus, position of the uterus, and insertion time. During the postpartum and breastfeeding period, the uterine wall is thin and soft due to hypoestrogenism, increasing the risk of IUD migration. High levels of B-endorphins, associated with higher pain tolerance in women, may increase the risk of asymptomatic IUD uterine perforation [8]. Hyperflexed uterine position (acute retroflexy or anteflexy), insertion by inexperienced health personnel, susceptible uterine wall due to multiparity, history of cesarean section, poor healing of uterine surgery scars, and the presence of congenital uterine anomalies are all risk factors for IUD migration [1-2]. Other variables that may contribute to IUD migration include strong uterine contractions caused by labor or sexual stimulation, strong bladder contractions, intestinal peristalsis, peritoneal fluid movement, and the inflammatory effects of the IUD [6,9].

IUD migration may be asymptomatic or symptomatic, depending on the location of IUD migration. Approximately 31% of women with IUD migration were asymptomatic, according to a systematic review study [2].

In most cases of direct uterine perforation during insertion, the patient would immediately report symptoms such as acute pelvic pain or abnormal bleeding, but asymptomatic is not uncommon [2]. In approximately 90% cases, the perforation is not immediately discovered at the time of IUD insertion. IUD threads generally still emerge from the cervical ostium at the end of the procedure, even in a complete perforation [8]. Clinical signs of IUD migration into the bladder include lower urinary tract symptoms (LUTS), suprapubic pain, hematuria, recurrent urinary tract infections (UTIs), and stone formation [9]. This can happen due to the passage of germs to the bladder, which, along with the copper component in the IUD, can cause infections and bladder stones. Obstructive symptoms caused by stone formation include straining when peeing or acute urine retention [6].

Diagnostic modalities such as ultrasound, X-rays, and CT scans can be used to locate the IUD. Transabdominal and transvaginal ultrasounds are the initial modalities for identifying IUD migration. Abdominal x-rays are used to identify IUD migration in the periuterine area if the IUD is not visible on gynecological examination and undetectable on ultrasound [10]. The IUD will appear hyperechoic on ultrasound and radiopaque on X-rays. In more complicated conditions, such as abscess formation, CT scans can be helpful in identifying intra abdominal IUD [11].

Patients with identified extrauterine IUD migration must immediately undergo IUD extraction, particularly the Cu-IUD, which can cause inflammatory reactions and adhesions [12]. The management of IUD migration into the bladder is determined by the position, shape, patient condition, and equipment availability [13]. If the IUD is partially displaced and the thread is in the vagina, it may be removed manually. Cystoscopy is used to retrieve an IUD that is totally embedded in the bladder. If this method fails, the next step is to perform a laparoscopic or open surgery [14].

In the present case, the patient was known to have IUD migration into the bladder after 15 months of using IUD. The patient didn't have any complaints after IUD insertion until a week prior visiting primary health care for IUD control. The patient never had an IUD control while using IUD before. The IUD migration mechanism may be due to the procedural error during installation, resulting in traumatic uterine perforation. The health personnel might not use the tenaculum to perform traction on the cervix, accompanied by inappropriate assessment and measurement of the uterus with a probe. With the uterus in a retroflexed position, anterior uterine perforation can occur into the vesicouterine space, leading in IUD migration. In the present case, the IUD was entirely in the bladder and completely removed by cystoscopy. There wasn’t any stone calcification and fistula formation. One day after the procedure, the patient was discharged from hospital. There were no complaints from the patient. The patient was given painkillers and tamsulosin after cystoscopy.

Conclusion

IUD migration into the bladder is a rare yet serious complication that must be warned. Procedural installation of IUD is important as well as regular evaluation to ensure the location of IUD. In IUD users with UTI symptoms that have not recovered, migration of IUD into the bladder needs to be considered.

Ethical Clearance

Approval of this study was obtained from the Health Research Ethics Committee, Jombang Public Hospital, No. 76/KEPK/VIII/2024.

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Conflict of interest

The authors define no conflict of interest.

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