Intravesical Migration of Intrauterine Device Mimicking Bladder Stone on Radiologic Imaging: A Case Report

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Abstract Due to its high cost-effectiveness, intrauterine device (IUD) is one of the widely used contraception methods worldwide. Intravesical migration of an IUD via perforation of the uterus and bladder is very rare. Endoscopic approach is recommended in the treatment, but open surgery may also be needed rarely. In this report, we present the case of a 37-year-old female who was misdiagnosed radiologically with bladder stone, but later on, it was understood that an IUD migrated to the bladder and resulted in stone formation. Laser lithotripsy was performed, and the migrated IUD was unearthed. Removal of the IUD with cystoscopic forceps was unsuccessful. Postoperative pelvic computed tomography revealed that a part of the IUD was outside the bladder. At the next operation session, laparoscopic removal of the IUD was applied. The patient was followed up for 5 days with a Foley catheter and discharged after performing cystography, assuring us that the bladder contours were normal.

Keywords Bladder · Bladder stone · Endoscopic surgical procedures · Intrauterine device migrations

Case History

A 37-year-old female was admitted to our urology outpatient clinic with complaints of suprapubic pain, polyuria, and urgency for the past 8 months. From her

medical history, we have been informed that despite administration of an intrauterine device (IUD) 6 years ago, she had ectopic pregnancy 4 years ago and therefore she was applied with laparoscopic salpingectomy in a tertiary health-care center, and doctors told her they removed the IUD at the same operation. Her family history was unremarkable and physical examination was normal. Abundant leukocytes, erythrocytes, and crystals were detected at urinalysis. An opacity of 1.5×2 cm in size was viewed in the pelvic region of the urinary tract X-ray. It was reported as a bladder stone at pelvic ultrasonography. Cystoscopic stone fragmentation was planned. However, at cystoscopic examination, it appeared that the opacity which was radiologically considered bladder stone was indeed an intravesical encrusted foreign body entering the bladder lumen from the posterior wall (Fig. 1). Laser lithotripsy was performed and the migrated IUD was unearthed. Removal of the IUD with cystoscopic forceps was attempted, but the IUD was stuck firmly to the bladder wall. Postoperative pelvic computed tomography (CT) revealed that about 1 cm of the IUD was outside the bladder (Fig. 2). At the next operation session, laparoscopic removal of the IUD that was not associated with the uterus anymore was applied. The patient was followed up for 5 days with a Foley catheter, and hematuria was not developed within this early postoperative period. The patient was discharged after performing cystography, assuring us that the bladder contours were normal.

Discussion

IUD is a contraceptive method that is widely used worldwide because of its efficacy, reliability, economy, and

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Fig. 1 Cystoscopic view of encrusted intravesical IUD before the lithotripsy

extractability. However, IUD may cause complications such as unwanted pregnancy, abortion, pelvic infection, uterine or bowel perforation, migration to adjacent organs and vesicouterine fistula [1–3]. Uterine perforation rates were reported between 1/2500 and 1/350 in various studies [1, 2, 4, 5]. However, the true incidence might be higher because of unreported asymptomatic cases [6]. Migration to the bladder and calculus formation are very rare [2].

Spontaneous migration of IUD has been tried to be explained by several mechanisms such as iatrogenic perforation of the uterus, spontaneous uterine or involuntary bladder contractions, intestinal peristalsis, and peritoneal fluid motion [1, 5, 6]. Among the factors that increase the risk of uterine perforation are IUD application by inexperienced medical practitioners, uterine wall fragility related to multiparity, uterine atrophy, hypoenestrogenemia during postpartum and lactation periods, adhesions due to

previous operations, vaginal tissue damage created by speculum, history of a recent abortion, and congenital uterine anomalies [1–3, 6]. Although uterine perforation usually occurs at the time of insertion, migration to the bladder and development of symptoms are slow processes [2]. In our case, the IUD had been applied by an allied health personnel. Late appearance of symptoms suggested that perforation did not occur at the time of insertion, but this might be due to slow progression of migration. Many authors have emphasized that application of IUD by experts had the primary importance to prevent complications [1, 6]. Postponement of early postpartum IUD insertions for 3 months has been also highlighted as a precaution [6].

Urinary system imaging is necessary to any woman who had recurrent urinary tract infections [5]. In these circumstances, uterine perforation should be suspected: when women with IUD had urinary symptoms or bladder stone, the IUD was not in the uterine cavity on ultrasound, and the strings of the IUD were not seen at the visual inspection of the cervix [5, 7]. Diagnostic methods for a vanishing IUD are X-ray film, ultrasound, intravenous pyelography, CT, and cystoscopy [1]. Intravesical migration of IUD might result in calculus formation. A clinical scenario of a vanishing IUD in conjunction with bladder stone should suspect an encrusted intravesical IUD [6].

Standard treatments of IUD migration to bladder are minimally invasive approaches [1]. Open surgery may be required in cases of large stone formation and failing to treat partial penetration to the bladder wall with endoscopic methods [5]. Although a therapeutic approach to asymptomatic uterine perforation is controversial, copper-clad IUDs should be removed because of the inflammatory reaction and eventual adhesion they make [2, 4, 5]. The World Health Organization and International Planned Parenthood Federation suggest the removal of any extrauterine dislocated IUD regardless of its type and location [5]. In our case, continuation of symptoms until the removal of IUD supports the necessity of removal in symptomatic cases. We believe that removal of extrauterine dislocated IUDs is mandatory even in asymptomatic patients because of its potentially serious complications.

Conclusion

Frequent urinary tract infections, storage symptoms, and chronic pelvic pain in a patient with IUD should alert us to suspect uterine perforation and intravesical migration of IUD. Every woman should be informed before IUD insertion procedure about these serious

Fig. 2 CT image of IUD that migrated to the bladder through left posterolateral wall

complications. All extrauterine IUDs must be removed due to their potentially serious complications.

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