

# LAPAROSCOPIC REMOVAL OF A MIGRATED INTRAUTERINE CONTRACEPTIVE DEVICE WITH BLADDER PENETRATION

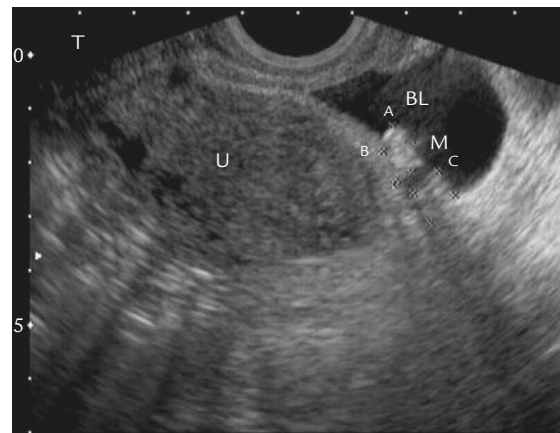
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A 28-year-old woman, para 2, visited our clinic presenting with episodic suprapubic pain, urinary frequency, and urgency for several months. She reported having an intrauterine contraceptive device (IUD) inserted 3 years previously. Physical and pelvic examinations were unremarkable. Urinalysis revealed only mild microscopic hematuria. No IUD was detected in the uterine cavity on transvaginal ultrasonography, but an echogenic mass, measuring  $0.9 \times 0.7$  cm in size and resembling a bladder stone, was found in the urinary bladder (Figure 1). She was referred to the urology clinic where cystoscopy revealed a bladder stone forming on the tip of a stitch, fixed near the bladder dome (Figure 2). Pelvic computed tomography (CT) showed that the IUD had completely migrated out of the uterus and was located in the pelvic cavity, and had partially penetrated the urinary bladder (Figure 3). Laparoscopy was performed to identify the relationship between the migrated IUD and adjacent anatomic structures in the pelvic cavity. The IUD was embedded in a dense adhesion band composed of the omentum, anterior peritoneal wall and the bladder dome. Adhesiolysis was not performed. We grasped the IUD and attempted to pull it out of the bladder by directly applying gentle traction (Figure 4). We pulled the IUD completely and smoothly out of the bladder, without causing any injury or excessive bleeding. The bladder wall perforation was identified cystoscopically and the perforation was coated with a blood clot. We managed it conservatively with an indwelling transurethral catheter, which was removed on the seventh postoperative day. No complications ensued.

The incidence of uterine perforation by an IUD ranges from 0.003% to 0.87% [1]. The true incidence of perforation is believed to be higher because most IUD migration is asymptomatic. About 60 cases of complications secondary to intravesical IUD migration have



**Figure 1.** Transvaginal sonography shows an echogenic mass (M),  $0.9 \times 0.7$  cm in size, in the urinary bladder (BL). U = uterus.



**Figure 2.** Cystoscopy reveals a bladder stone formed on the tip of a stitch (arrow) near the bladder dome.

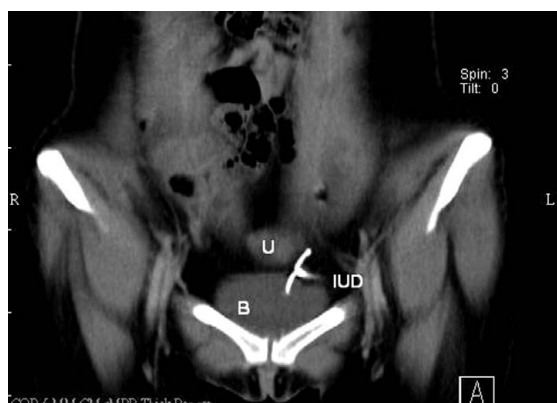


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Accepted: May 25, 2009



**Figure 3.** Pelvic computed tomography shows the intrauterine device (IUD) migrated into the pelvic cavity with partial bladder (B) penetration. U = uterus.

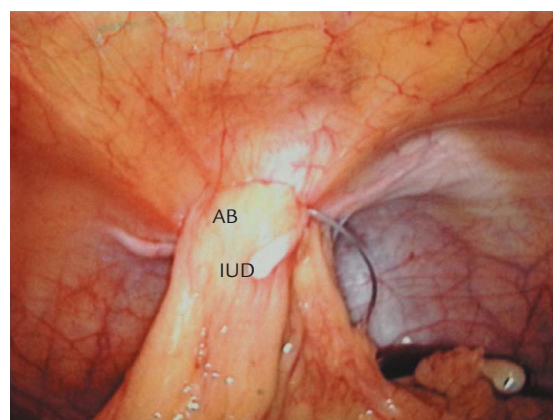
been reported. Most of these cases were managed via cystoscopy or laparotomy. We report a case of intravesical migration of an IUD managed via laparoscopy.

Intravesical migration of IUDs alone can cause chronic loin or pelvic pain, recurrent urinary tract infection, or persistent lower urinary tract symptoms, such as hematuria, dysuria, frequency, and supra-pubic pain. Besides, they probably act as a nidus of crystallization for bladder stones. Since vesicle calculi are unusual in women, their presence should raise the suspicion of intravesical foreign bodies [4]. Although urinary tract infection is common in women, recurrent infection or any irritating urinary symptoms unresponsive to medical treatment warrant the search for a foreign body in the urinary system, especially when patients have a history of abdominal or pelvic surgery or have undergone IUD insertion as a contraceptive method [5–7].

Although an IUD can be expelled without a patient's knowledge, clinicians should assume that it is either dislocated or migrated until it is documented as not located inside the patient. This is especially the case when the IUD string is missing during vaginal examination, or when the patient reports an unexpected pregnancy after IUD insertion [8]. Even the presence of an IUD string visible through the cervical os is insufficient to exclude the possibility of a dislocated IUD [9,10].

To evaluate the status of an IUD, a plain X-ray film is the first diagnostic procedure because it can show whether the IUD is within the patient [7,11]. X-ray films also provide information on the possibility of bladder injury or intravesical migration of an IUD by detecting calculus formation [11].

Sonography can demonstrate whether an IUD is properly located inside the uterine cavity or is displaced. However, it cannot accurately demonstrate the extent of myometrial or bladder wall perforation, especially when the IUD has completely migrated outside of the



**Figure 4.** On laparoscopy, most of the intrauterine device (IUD) was embedded in a dense adhesion band (AB).

uterus [5,7]. El-Hefnawy et al suggested that non-contrast CT be included in the differential diagnosis as the investigation of choice after the diagnosis of dislocated IUD is made because it can precisely depict the site of the dislocated IUD, anatomic relation between the migrated IUD and organs involved, and the extent of bladder injury. This makes selection of optimal management easier, without the need for further invasive diagnostic methods such as intravenous pyelography, cystography, or hystero-graphy [7].

Copper-laden IUDs that migrate to the bladder should be removed because of the inflammatory reaction they induce [5,7,13]. Several methods for removal have been reported, including cystoscopy and suprapubic cystotomy. When the IUD has partially penetrated the bladder or is fixed to the bladder wall, open surgery with suprapubic cystotomy is most commonly performed [4,5,8,14]. Perforation of the bladder wall, caused by pulling the IUD out of the bladder wall, usually heals simply with prolonged urinary drainage [13].

Laparoscopic removal of migrated IUDs is applied mainly to those freely floating in the peritoneal cavity [14]. To the best of our knowledge, this method has only been used as one of the modalities for removal of migrated IUDs in a few cases of bladder perforation [11,15,16]. We report a novel case in which a migrated IUD partially penetrated the bladder, resulting in formation of a bladder stone and a peritoneal adhesion, which was completely removed simply by gentle traction via laparoscopy. This case showed that when trying to remove a migrated IUD with partial bladder penetration, especially when most of the IUD is located in the peritoneal cavity, laparoscopy is preferable to laparotomy. Even when obvious peritoneal adhesion is present, gentle traction on the IUD via laparoscopy is minimally invasive and avoids the complications of open surgery at the outset.

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