

## Intrauterine contraceptive device embedded in bladder wall with calculus formation removed successfully with open surgery

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Tan JH, Lip HTC, Ong WLK, et al. Intrauterine contraceptive device embedded in bladder wall with calculus formation removed successfully with open surgery. *Malays Fam Physician*. 2019;14(2);29–31.

### Keywords:

Intrauterine contraceptive devices migration; recurrent urinary tract infections; cystoscopy; bladder calculi.

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### Abstract:

An Intrauterine contraceptive devices (IUCD) is commonly inserted by the primary health care physician. It can migrate into pelvic or abdominal organs. When a pregnancy occurs following an insertion of an IUCD, there should be a high suspicion of uterine perforation or possible migration. A radiograph can be done in the primary health care clinic to search for a missing IUCD. Early referral to the urology service is warranted when a patient presents with recurrent urinary tract infections. Removal of an intravesical IUCD can be managed with cystoscopy, laparoscopy or open surgery. Herein, we report a case of IUCD migration into the bladder. This case will highlight the importance of proper technique, careful insertion and the role of ultrasound.

### Introduction

Intrauterine contraceptive devices (IUCD) can cause perforation of the uterus and migrate into pelvic or abdominal organs. Perforation of the urinary bladder by an IUCD is not a common occurrence. IUCD perforations can be classified into four types according to the anatomical compartments involved. The first compartment is within the uterine cavity, the second is confined to the myometrium and the third compartment is a breach of the peritoneal cavity. When the IUCD penetrates the neighboring viscera, such as the bowels or bladder, it is type 4.<sup>1</sup> There are several cases of an IUCD wandering to the pelvis and abdominal organs reported in Malaysia<sup>2,3</sup>. Here, we describe a rare case of IUCD migration into the bladder. To our knowledge, this is the first case ever to be reported in Malaysia.

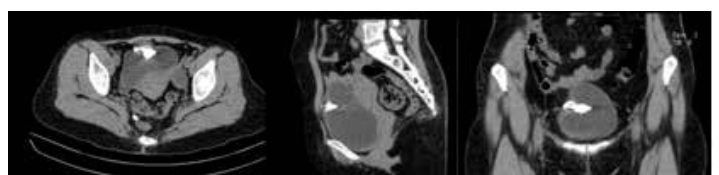
### Case presentation

A 42-year-old female presented with dysuria for the past 10 months. She also had lower urinary tract symptoms, including frequency, nocturia, a sense of incomplete voiding and suprapubic discomfort. She was blessed with four children before she had an IUCD inserted 13 years ago. Five years later, she had two subsequent vaginal deliveries. On physical examination, the abdominal and vaginal examinations were

unremarkable. Her white cell count and renal function were within normal limits. The urine cultures were positive for extended-spectrum beta-lactamases (ESBLs) *E coli*, which are sensitive only to Carbapenem, Tazobactam/Piperacillin or Amikacin. In addition to an incidental finding of a bladder calculus in the abdominal radiograph (Fig. 1), a transabdominal ultrasound and computed tomography revealed an IUCD within the pelvic cavity which was embedded into the muscular bladder dome. It measured 3.4x1.5cm at the inferolateral wall of the bladder (Fig. 2).



**Figure 1.** Abdominal radiograph revealing IUCD with stone formation



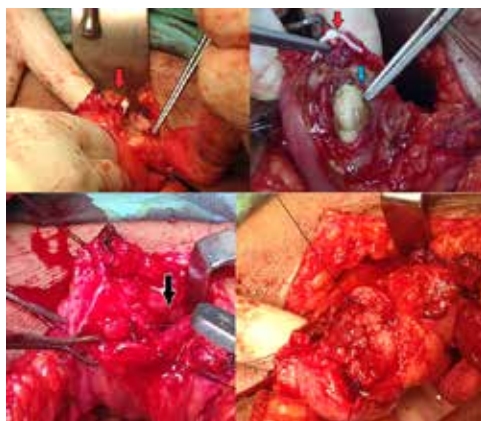
**Figure 2:** Computed tomography revealing IUCD with intravesical stone formation (axial, sagittal and coronal views)

Cystoscopic examination revealed the vertical limb of the IUCD penetrating into the bladder mucosa with its tip covered with stone formation (Fig. 3).



**Figure 3:** Cystoscopy showing the vertical arm of IUCD penetrating the bladder mucosa (red arrow) and its body covered with stone.

Following 2 weeks of antibiotic treatment for urinary tract infection, a midline laparotomy was performed whereby the bladder was explored at its dome close to the anterior bladder wall. The horizontal arms of the IUCD were embedded in the bladder wall, and the vertical arm was covered with stone formation. The migrated IUCD together with the stone was extracted. The bladder defect was repaired with two layers of absorbable sutures (Fig. 4, 5). The patient recovered well postoperatively, with the catheter removed following a normal cystogram.



**Figure 4:** Intraoperative Picture

- \* The IUCD with its horizontal arm embedded within the bladder wall (red arrows) and vertical arm covered by stone within the bladder cavity (blue arrow).
- \*\* bladder opening after IUCD removal (black arrow)



**Figure 5:** IUCD Removal

- \* stone encrusted at copper part of vertical arm (black arrow)
- \*\* distal tip of vertical arm piercing bladder mucosa (red arrow)

**Discussion**

The IUCD is one of the most common modes of contraception. It is frequently inserted by primary health care practitioners. The incidence of IUCD migration and uterine perforation is reported as 1.9–3.6 per 1000 insertions.<sup>4</sup> It is believed that perforation occurs mostly at the time of insertion, but it may also occur spontaneously at a later time or during puerperium.<sup>5</sup> Therefore, it is of utmost importance to observe the proper insertion technique. A simplified insertion technique without prior pelvic examination and sounding has been described.<sup>6</sup> It was concluded that this may reduce the need for instrument use during insertion and, consequently, the pain associated with insertion. However, ultrasound guidance during insertion was highlighted. A recent trial also suggested that ultrasound-guided insertion may be beneficial,<sup>7</sup> although the endpoints of uterine perforation or IUCD migration were examined, as the incidence was too low. Nevertheless, ultrasound remains a good practice to assure proper IUCD insertion. It also allows early identification of uterine perforation.

The presentation of recurrent urinary tract infection after IUCD insertion may suggest an intravesical migration.<sup>8</sup> In our case, the patient presented with the symptoms many years after IUCD insertion. This passage

of time suggested that the intravesical migration occurred later. Her two deliveries after the IUCD insertion may substantiate the migration. In this case, there was the late diagnosis of IUCD migration when she presented with urinary symptoms after having them for months. This case highlights the importance of high suspicion when a pregnancy occurs with a prior history of IUCD insertion. A simple radiograph with or without ultrasound may be able to diagnose a migrated IUCD. If an intravesical migration is suspected, a urology referral can be made for a cystoscopy.

The literature describes multiple methods of IUCD removal via cystoscopy, laparoscopy or open surgery.<sup>1,9</sup> In our case, the cystoscopy and

computed tomography revealed that the IUCD was embedded within the bladder dome. Due to the potential risk of an intraperitoneal rupture of the bladder with cystoscopic removal, we decided for an open removal.

### Conclusion

When a pregnancy occurs following the insertion of an IUCD, there should be a high suspicion of uterine perforation or possible migration. A radiograph can be done in a primary health care clinic setting to search for a missing IUCD. Techniques for removal depend on the organ involved. Early referral to a subspecialty center is warranted following an initial workup.

### How does this paper make a difference to general practice?

- An IUCD is commonly inserted by the primary health care physician. This case will highlight the importance of proper technique, careful insertion and the role of ultrasound.
- Awareness of IUCD migration is essential.
- When a pregnancy occurs following an insertion of an IUCD, there should be a high suspicion of uterine perforation or possible migration.
- A radiograph can be done in the primary health care clinic to search for a missing IUCD.
- Early referral to the urology service is warranted when a patient presents with recurrent urinary tract infections. Removal of an intravesical IUCD can be managed with cystoscopy, laparoscopy or open surgery.

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