

SECONDARY VESICAL CALCULUS FORMATION DUE TO INTRAVESICAL MIGRATION OF A COPPER-T INTRAUTERINE CONTRACEPTIVE DEVICE; A CASE REPORT

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ABSTRACT

Intrauterine contraceptive devices (IUCDs) are the most effective and long term, reversible, contraceptive method, used worldwide. Uterine perforation resulting in migration of IUCD into adjacent organs is an uncommon but potentially serious complication. Intravesical migration may lead to lower urinary tract symptoms, recurrent urinary tract infections, and bladder stone formation. A 50-year-old multiparous woman presented with intermittent burning micturition for one month. An ultrasound examination performed for evaluation of chronic abdominal pain incidentally revealed a large vesical calculus. Subsequent non-contrast computed tomography (CT) of the abdomen and pelvis demonstrated a 4.8 × 1.4 cm bladder stone surrounding a T-shaped foreign body consistent with a migrated Copper-T IUCD. Further history revealed probable IUCD insertion about 17 years earlier. The patient underwent cystoscopy and endoscopic litholapaxy with successful fragmentation and removal of the vesical calculus and embedded IUCD fragments. The postoperative course was uneventful. The patient experienced complete resolution of urinary symptoms and remained asymptomatic at follow-up. Although rare, intravesical migration of an IUCD should be considered in women presenting with persistent lower urinary tract symptoms or vesical calculi, particularly when there is a history of IUCD insertion. Early diagnosis and timely intervention can prevent long-term complications.

Keywords: Bladder stone, Copper-T, Cystoscopy, Intravesical migration, IUCD, Vesical calculus.

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INTRODUCTION

Intrauterine contraceptive devices (IUCDs) are widely used, worldwide, because of their effectiveness, reversibility, safety profile, and affordability. Complications may occur, including expulsion, infection, uterine perforation, and migration into adjacent pelvic or abdominal organs. Uterine perforation is uncommon, with an estimated incidence ranging from 1 to 3 per 1,000 insertions¹.

Migration of an IUCD into the urinary bladder is a rare complication that may remain asymptomatic for years before clinical presentation². Once inside the bladder, the device

acts as a nidus for stone formation and can present with symptoms of recurrent urinary tract infections, hematuria, dysuria, or bladder calculi³. Because delayed diagnosis can lead to significant morbidity, awareness of this complication is essential.

We report a case of secondary vesical calculus formation around a migrated Copper-T IUCD, diagnosed approximately 17 years after insertion and successfully managed by endoscopic removal.

Case Presentation: A 50-year-old multiparous woman was referred to the Department of Urology at HITEC Institute of Medical Sciences, Taxila, after an abdominal ultrasound revealed a large vesical calculus.

The patient complained of intermittent burning micturition for one month. She denied gross hematuria, urinary retention, urinary incontinence, fever, flank pain, or recurrent urinary tract infections. Her medical history was significant for chronic epigastric pain for approximately three years, for which she had

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been receiving treatment with proton pump inhibitors and antacids.

As part of the evaluation of worsening abdominal pain, a plain x-ray KUB was carried out, demonstrating a large bladder stone (Figure 1). Ultrasound of the abdomen and pelvis confirmed the diagnosis of bladder stone. The patient was subsequently referred for urological assessment.

Further evaluation with a non-contrast CT scan of the abdomen and pelvis revealed a 4.8 × 1.4 cm irregular hyperdense vesical calculus, surrounding a T-shaped foreign body consistent with a Copper-T IUCD (Figure 2). The stone appeared rough and irregular in morphology.

On detailed questioning, the patient recalled being taken to a local birth attendant shortly after the birth of her youngest child, approximately 17 years earlier. Although she had not been informed regarding IUCD insertion or follow-up requirements, this history strongly suggested the placement of a Copper-T IUCD during the postpartum period.

CAPSULE SUMMARY

A case of a woman with intermittent burning micturition is presented who was found to have a large vesical calculus formed around a migrated Copper-T IUCD, 17 years after insertion, which was successfully removed by endoscopic litholapaxy.

Diagnostic Assessment: Based on clinical history and radiological findings, a diagnosis of secondary vesical calculus formed around a migrated intravesical Copper-T IUCD was established.

Management: The patient was admitted for endoscopic management. Diagnostic cystoscopy demonstrated a large irregular vesical calculus, occupying the bladder lumen. The stone was found to be formed around an embedded foreign body, consistent with a migrated IUCD (Figure 3a&b).

Endoscopic litholapaxy was performed. Owing to the large size and hardness of the stone, fragmentation was achieved using a stone punch. During the procedure, the embedded IUCD was also fragmented and removed along with the stone fragments. Complete clearance of visible stone and foreign-body material was achieved (Figure 4).

A two-way Foley catheter was inserted postoperatively and was maintained for three days. The patient received analgesics and prophylactic antibiotics. Following catheter removal, she



Figure 1:



Figure 2:



Figure 3a:



Figure 3b:



Figure 4:

voided satisfactorily and was discharged on oral antibiotics and analgesics for one week.

Outcome and Follow-Up: The postoperative recovery was uneventful. At one-week follow-up, the patient reported complete resolution of burning micturition and had no urinary complaints. She remained clinically stable with satisfactory urinary function.

DISCUSSION

Uterine perforation with intravesical migration of intrauterine device is a very rare complication, with a reported incidence of only 0.04% to 2.8 %¹. Uterine perforation by IUD is often asymptomatic and most of the authors do not describe any major symptom during the perforation². The bladder migration of IUCD may be responsible for burning micturition and dysuria (as in our case) or even terminal hematuria³. The diagnosis is often confirmed on plain X-ray KUB, which shows the IUCD, with its metallic stone, encompassed in an opacity of calcium stone, as the stones are often radiopaque⁴. Abdominal ultrasound confirms the bladder migration of IUCD with or without stone formation. Non-contrast CT scan is the modality of choice, which often demonstrates a hyperdense T-shaped structure within the bladder often encased by a calculus⁵. The IUCD perforation of the uterine wall as well as its migration can sometimes (in 0.1–0.9% of cases) lead to serious complications, like pelvic abscess, intestinal perforation and vesicoureteral fistula^{6,7}. In case of vesicouterine fistula, laproscopic repair is the modality of choice for IUCD/Stone removal and fistula repair in the same setting^{8–12}. The trans uterine migration of IUCD can go anywhere in the abdomen. A recent review illustrates that the bowel is the most affected organ in case of perforated and migrated IUCD (Intestine 32%, appendix 1%, ileum 5%, colon 4%, rectum 12% and sigmoid 9%). The urinary bladder is the 2nd most common organ where IUCD can migrate which is often associated with stone formation and lower urinary tract symptoms⁴. The recurrent UTI's and chronic inflammation often lead to calculus formation, over the migrated IUCD^{2,5}. The stone along with the IUCD, can be removed either endoscopically, as we did in our case or via laparotomy and vesicolithotomy⁶. In case of partial

perforation of the bladder wall, laproscopic extraction maybe needed⁷. Vesical calculus secondary to migrated copper IUCD, though rare, should be considered in women with history of IUCD insertion, presenting with refractory lower urinary tract symptoms (LUTS) or recurrent UTI. CT and cystoscopy are the diagnostic mainstays. Management ranges from minimally invasive endoscopic extraction to Vesicolithotomy, which is often reserved for giant calculi. Early recognition and patient education are key to preventing morbidity.

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AUTHORS' CONTRIBUTION

- **Ahmad Sajjad:** Conception and design, Critical revision.
- **Riaz Anwar Bashir:** Conception and design, Critical revision.
- **Hasnain Ahmad:** Drafting the article
- **Muhammad Tabish:** Drafting the article.
- **Nouman Ahmad:** Drafting the article.

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