

## Hydronephrosis due to a Migrated Intrauterine Device into the Ureter: A Very Rare Case

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### ABSTRACT

Intrauterine device (IUD) insertion is a long-acting and one of the most effective modes of reversible contraception. Complications that most commonly arise following IUD insertion are failed insertion, pain, vasovagal reactions, infection, menstrual abnormalities, and expulsion. In this paper, we present the case of a woman who experienced hydronephrosis due to the migration of IUD into the ureter after 30 years of insertion. To the best of our knowledge, this is the third such case reported in the literature.

**Keywords:** Intrauterine device, hydronephrosis, ureter migration

### Introduction

Intrauterine device (IUD) insertion is a long-acting and one of the most effective modes of reversible contraception [1].

The most common complications of IUD insertion are failed placement, infection, pain, menstrual abnormalities, expulsion, and vasovagal reactions [2]. Rare complications of IUD insertion are embedment in the myometrium and perforation beyond the uterine serosa, with an incidence rate of 0.01% [2, 3].

Risk factors for uterine perforation are postpartum amenorrhea, breastfeeding, postpartum period less than 6 months, and inexperienced practitioners [3, 4]. Symptoms of IUD misplacement are abnormal vaginal bleeding and abdominal pain; however, at times, this complication may be asymptomatic [4, 5]. Intra-abdominal migration occurs very rarely and may result in injury to various structures [6].

We present a case of hydronephrosis due to the migration of IUD into the ureter after 30 years of insertion. To the best of our knowledge, this is the third such case reported in the literature.

### Case Report

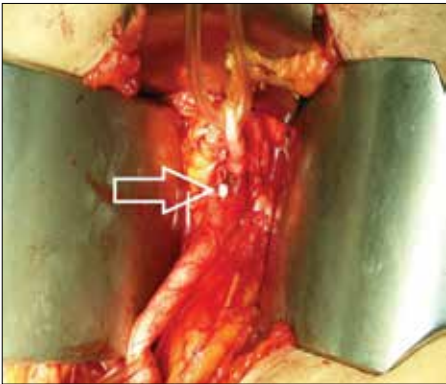
A 54-year-old woman presented with left-side flank pain, hematuria, and dysuria. IUD had been inserted 30 years prior to the presentation. Obstetric history (Gravida, Para 2 and Abortion 0) revealed that all labors were normal vaginal deliveries, and 6 months after the second delivery, an IUD was inserted for contraception.

The patient presented to our clinic with left-flank pain that had initiated 15 days prior to the presentation. She had no previous history of stone disease. A non-contrast-enhanced computed tomography (CT) scan was performed. CT imaging revealed left hydronephrosis due to intraluminal extension of a part of foreign material that looked like an IUD in the distal 1/3<sup>rd</sup> of the ureter (Figure 1).

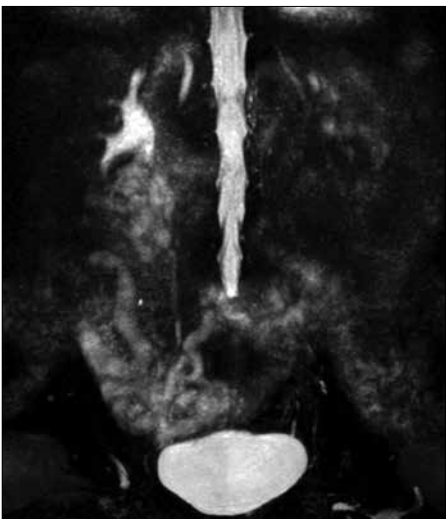
Under general anesthesia, left ureteroscopy was performed. The ureteral mucosa was severely edematous and obstructive, and no foreign material could be seen in the lumen. Subsequently, open surgery with left inguinal incision was performed. The left ureter was isolated and IUD was



**Figure 1.** Intrauterine device migrated to the left ureter



**Figure 2.** Intrauterine device (arrow)



**Figure 3.** MR urography

palpated in the lumen. The ureteric wall was incised and IUD was extracted (Figure 2).

A JJ stent (Biorad Medisys, Bangalore, India) was inserted at the end of the operation. The post-operative period was uneventful. The patient was discharged at postoperative day 2. The JJ stent was extracted 6 weeks later. At the 1-year follow-up, the patient was evaluated with magnetic resonance urography (Figure 3). Hydronephrosis had disappeared, and no stricture was observed in the ureter.

Informed consent was obtained from the patient for the publication of this case report.

## Discussion

Intrauterine device perforation mechanism has not been explained yet, and various theories pertaining to it exist [7].

The first theory states that perforation occurs when the device is placed and IUD is released beyond the uterine serosa. The second theory states that although IUD is placed correctly, transmural migration of IUD causes perforation. Finally, embedment may occur during placement and result in transmural migration and perforation.

Other rare complications were trans-tubal migration and trans-cervical perforation [8]. Symptoms of IUD misplacement are abnormal vaginal bleeding and abdominal pain; however, at times, this complication may be asymptomatic [4, 5]. Intra-abdominal migration very rarely occurs and may result in injury to various structures [6].

Complications resulting from uterine perforation include infection, abscess formation, bleeding, or perforation of other intraperitoneal organs, most often involving the bowel or bladder [9, 10]. Our patient presented with left-side flank pain that had initiated 15 days before admission to our clinic. A CT scan showed the migration of IUD into the ureter as the cause of hydronephrosis.

In conclusion, this case presents a very rare cause of hydronephrosis that should be kept in mind in the absence of other factors in women having undergone IUD insertion. The treatment should include surgery for the extraction of the device, and the patient should be followed up for a possible formation of ureteric stricture over the long term.

**Informed Consent:** Written informed consent was obtained from patient who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - I.H.B., I.B.; Design - I.B., T.Y.; Supervision - I.B., T.D.; Resources - O.A., T.Y.; Materials - I.H.B., T.Y.; Data Collection and/or Processing - O.A., M.E.A., E.S.; Analysis and/or Interpretation - O.A., T.D., E.S.; Literature Search - M.E.A., I.H.B.; Writing Manuscript - M.E.A., I.B., T.D.; Critical Review - O.A., T.D., E.S.

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