

## Silent perforation and migration of IUCD: A diagnostic challenge in patients with pain abdomen: A case report

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### ABSTRACT

Secondary perforations of intrauterine contraceptive devices (IUCD) may be clinically silent. The patient may not report the missing threads due to a lack of acute symptoms or under the impression that the device could have been expelled. We present a case of a 42-year-old lady treated for renal cell carcinoma and presenting with recurrent right lower quadrant abdominal pain for 2 years. Ultrasound scans did not reveal any abnormality. A plain computed tomography (CT) revealed a migrated IUCD embedded in the omentum with adjacent inflammation. Although CT is not the modality of choice in the diagnosis of migrated IUCD, it proved helpful in diagnosing this case as history was not forthcoming. This case highlights the diagnostic dilemma faced in cases of silent IUCD migration presenting with pain abdomen. It is important to counsel the patient at the time of IUCD insertion for the early recognition of missing devices and prompt diagnosis of complications.

**Key words:** Intrauterine contraceptive device, Migrated IUCD, Pelvic inflammatory disease, Uterine perforation

Intrauterine contraceptive devices (IUCD) are one of the commonly used reversible modes of contraception. Uterine perforation and migration are uncommon yet serious complications associated with IUCDs [1]. The perforated device can be partially embedded in the uterine myometrium or may migrate to the peritoneal cavity or other organs. Adhesions developing around the migrated device may be responsible for episodes of pain, intestinal obstruction, pelvic inflammatory disease, and infertility. Occasionally, secondary perforations may be clinically silent and the patient may not report the missing threads due to lack of symptoms at that point of time or under the impression that the device could have been expelled.

In this article, we present a case of silent perforation and migration of IUCD in a treated case of renal cell carcinoma presenting with recurrent abdominal pain. It showcases an uncommon presentation of IUCD migration and highlights the importance of computed tomography (CT) scan in the diagnosis of pain abdomen in cases with a negative ultrasound scan and evaluation of migrated IUCD especially in cases where the prior history of insertion or missing threads could not be elicited.

### CASE REPORT


A 42-year-old woman presented to our tertiary care institute in August 2020 with a history of recurrent vague right lower abdominal pain for the past one year. She had a history of nephrectomy for left-sided renal cell carcinoma—operated on 2 years back in a different city and on follow-up. The pain had no aggravating/relieving factors or radiation. There were no associated bladder/bowel symptoms or hematuria. Ultrasound done at another hospital could not detect any abnormality. The patient was referred to us for a screening plain CT of the kidney and urinary bladder (CT-KUB).

At presentation, her vitals were normal and there was no fever. Her blood tests revealed hemoglobin of 13 mg/dl, the differential count did not reveal any neutrophilia (60%) or lymphocytosis (29%). Her coagulation profile, renal and liver function tests were normal. On local examination, there was mild tenderness in the right iliac fossa. The clinical differential diagnosis included renal calculi, adhesions, or acute appendicitis.

Axial CT images revealed hyperdense foci in contiguous sections located in the anterior aspect of the peritoneal cavity underneath the right rectus muscle (Fig. 1). CT-scanograms (Fig. 2a) confirmed the abnormal position of the IUCD in the pelvis. Coronal (Fig. 2b) and maximum intensity projection (MIP) (Fig. 2c) images demonstrated the morphology of the device in

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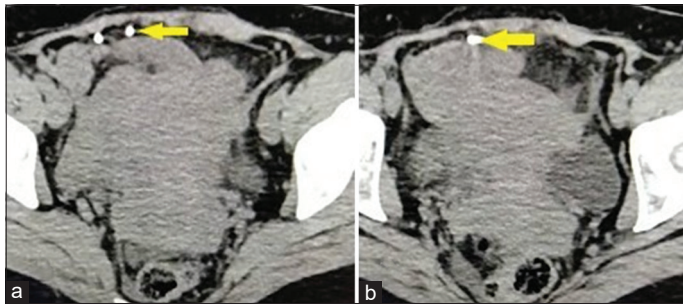
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toto. The minimal fat stranding was noted adjacent to the device. There was no abscess formation or signs of bowel obstruction. A diagnosis of migrated IUCD with adjacent inflammation was made. On re-taking the history following the CT scan, the patient disclosed having an IUCD inserted in 2018 and did not follow it up.

The patient underwent laparoscopic removal of the device (Fig. 3). Intraoperatively, the IUCD was seen in the right iliac fossa embedded in the omentum with adhesions. The post-operative period was uneventful. The patient's symptoms have resolved since and she is on routine follow-up for renal cell carcinoma.

## DISCUSSION

Uterine perforation though uncommon is a serious complication associated with IUCDs and occurs in 1 per 1000 insertions [1]. It can occur at the time of insertion (traumatic/acute perforation) or at a later date (secondary) due to slow erosion of the device through the myometrium [2]. The risk factors for perforation are: insertion in the early postpartum period (<6 months of delivery) or during lactation; developmental uterine anomalies; small uterine size (women of low parity), and technical inexperience. Malposition and expulsion of the inserted devices are significantly associated with the retroflexed position of the uterus, uterine anomalies, and the presence of fibroids [3].

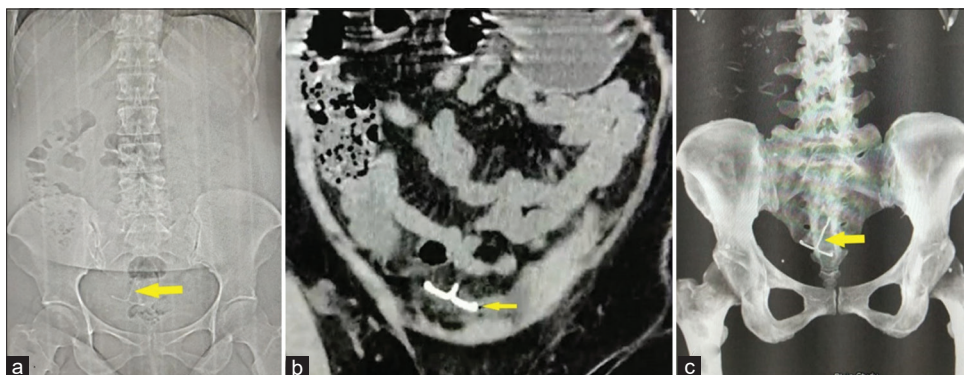


**Figure 1:** Axial CT KUB images at the level of the pelvis show the IUCD seen as hyperdense foci in the anterior peritoneal fat just underneath the rectus muscle with adjacent fat stranding. (a) Shows the transverse limbs (arrow) and (b) shows vertical limb (arrow)

Uterine perforation can be partial with the device embedded in the uterine myometrium or complete where it pierces through the serosa to lie in the peritoneum or migrates to other organs [4]. Such a migrated device may be free-floating or incite peritoneal inflammation which results in inter bowel loop and/or omental adhesions. Bowel/bladder perforations, fistula formation, strictures, retroperitoneal fibrosis [5], peritonitis [5], or hemorrhage [6] are some of the more serious sequels to IUCD migration. In acute perforation, the patient presents with pain and bleeding. Secondary perforations may present in myriad ways. Chronic recurrent low-grade pain due to adjacent inflammation can occur (as in our case). Adhesions forming around the device may result in subacute/recurrent bowel obstructions, pelvic inflammatory disease, and infertility [7]. Far migration of devices with no presenting symptoms is a very rare occurrence [8].

Imaging plays an important role in the evaluation of a missing IUCD and its complications. Transvaginal ultrasound is the first line of investigation in a woman presenting with non-palpation of threads/missing IUCD or sudden onset of pain. The device is visualized as a linear intensely echogenic line within the endometrium. Identification of abnormal position of the device with one of the limbs protruding into the myometrium indicates partial perforation or embedment of the device in the uterine wall. Plain radiographs of the pelvis done in Antero-posterior (AP) and lateral projections help in diagnosing the position of the device in relation to the endometrium. When the device is seen above the level of the pelvic brim, in far lateral positions on AP, and extreme anterior or posterior positions on lateral radiographs, extra-uterine migration can be suspected [7].

CT scan has an important role in the evaluation of cases of persisting abdominal pain with a negative ultrasound report. In our case, it aided in the diagnosis of an unsuspected migrated IUCD. The limbs of the device may be seen as hyperdense foci or as linear hyperdense lines lying freely in the peritoneum or adherent to an organ. The hyperdensities should not be mistaken for calcifications or phleboliths. The increased Hounsfield value of the device with continuity of the limbs in contiguous sections aids in the diagnosis. In cases, where the history of previous IUCD insertion is not forthcoming, studying the scanograms/



**Figure 2:** (a) CT Scanogram shows abnormal position of IUCD in the right side of pelvis with the transverse limbs (arrow) placed inferior to the vertical limb; (b) coronal CT image shows the migrated IUCD (arrow) located in the anterior peritoneal fat with adjacent inflammation; (c) MIP image shows the abnormal position of the migrated IUCD. The device can be seen in toto (arrow)



**Figure 3:** Post-operative picture of the device removed in - toto

reconstructions helps in easy diagnosis and prevents reporting errors.

Migrated IUCD with symptoms are removed with minimally invasive laparoscopic surgery [1], however, associated complications such as severe adhesions, bowel perforation, or abscess formation may warrant an open laparotomy. There are controversies regarding the treatment of asymptomatic non-complicated migrated IUCD. The World Health Organization (WHO) recommends the removal of the migrated IUCD irrespective of complications or symptoms [9] while some studies advocate conservative management [10].

## CONCLUSION

Patient counseling and regular follow-up are necessary for the early diagnosis and recognition of missing IUCD. It is not unusual for patients to present with IUCD complications decades after insertion. Imaging plays an important role in the evaluation of missing IUCD and diagnosing complications. CT scan though not the standard imaging modality used for missing IUCD. It can facilitate localization and diagnose associated complications especially in cases where the history is not forthcoming thus preventing reporting errors.

## PATIENT CONSENT

We hereby declare that consent of the patient has been taken for publication of this article. She has been informed regarding the use of her diagnostic images and assured anonymity.

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