

# Radiological accuracy in locating a migrated IUD from the uterine cavity

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### ABSTRACT

The Intra Uterine Device (IUD) is a safe and common form of contraception. Locating a lost IUD following silent perforation of the uterus either during or after IUD insertion is challenging. Locating the IUD using radiological investigation is straightforward. However, the use of a series of radiological investigations which brings the same management outcome is controversial in terms of cost. This is a report of a rare case in which several radiological investigations were conducted following IUD migration from the uterine cavity. The patient presented with lower abdominal pain and dyspareunia for one-year post IUD insertion. Plain pelvic X-ray has less diagnostic accuracy in locating a migrated IUD compared to pelvic ultrasound and pelvic Computer Tomography (CT). Although it is cheap and can be done in low resource areas where there is minimal health investment it should be used as a preliminary investigation in case pelvic ultrasound is not available. This case report shows the important role of different imaging modalities, depending on cost, infrastructure, availability of radiological expertise, and the timely availability of endoscopic services, in diagnosing and managing a displaced IUD compared to open surgery.

**Keywords:** diagnostic accuracy, migrated intrauterine devices, Tanzania.

### Introduction

Intrauterine devices (IUDs) are the most widely used form of long-acting reversible contraception because of their effectiveness, safety, and low cost. In Tanzania the most used modern methods of family planning among women are implants (14%), and injectable (9%). IUD is not among the commonly used method.<sup>[1]</sup> Counselling during family planning service delivery is the key intervention in case there is a complication, and this is very well covered in Tanzania. Among the most common IUD-reported complications are uterine infection, expulsions, removal, and discontinuation of the use of an IUD as a method of choice.<sup>[2,3]</sup> IUDs warrant close follow-up and immediate intervention when indicated.<sup>[4]</sup> Post-insertion review is needed, and emphasis should be to encourage all clinicians to advise clients concerning follow-up where speculum examination and appropriate radiological investigations are done.<sup>[5]</sup>

There is controversy about which diagnostic method should be ordered first in cases

where there is a suspected lost IUD after gynaecological examination and the thread is not visualized. This case report highlights the accuracy in diagnosis of a lost IUD and gives an insight into which radiological investigation should be ordered based on cost effectiveness and accuracy of diagnosis.

## Case Report

A 45-year-old female, para 4+0, presented in the gynaecology clinic with complaints of lower abdominal pain and dyspareunia for one-year post IUD insertion. The interval from the time of a laparotomy (myomectomy) due to uterine fibroid to the time of delivery of the third baby was about two years. She visited her Obstetrician about one year ago when an IUD was inserted three months post vaginal delivery. She reported that she had had a previous IUD device inserted four weeks postpartum, which was removed due to malposition.

She visited the same health facility with the above complaint. On gynaecological examination the IUD string was not identified. A pelvic ultrasound scan revealed an IUD approximately 2.5cm away from the fundus of the uterus to the right side and part of it to the peritoneum (Figure 1). Transvaginal ultrasound examination did not visualize the IUD. A plain abdominal pelvic X-ray (Figure 2) demonstrated an IUD projecting into the pelvic region in an inverted T shape, thereby confirming that it had not been expelled. Confirmatory evaluation with Computed Tomography (CT) (Figure 3) reported the displaced IUD in the right myometrium extending into the peritoneum.

Physical examination and blood chemistry were normal. The patient underwent a hysteroscopic examination for IUD removal. This was unsuccessful with no IUD found in the uterine cavity. She was counselled for laparotomy and total abdominal hysterectomy (TAH) based on the previous myomectomy and the currently lost IUD. However, the patient still wanted more children. Therefore, she was appropriately counselled in case a TAH became necessary during surgery. Laparotomy was done and an IUD was identified in the right fallopian tube with the string in the peritoneal cavity and the inverted T shape imbedded in the parametrium (Figure 4). right fallopian tube and ovary were healthy (Figure 4) as was the left fallopian tube and adnexae. The IUD was removed by blunt dissection. There was no sign of infection. TAH was not performed. Recovery from surgery was uneventful. The patient opted for an alternative method of contraception other than IUD.

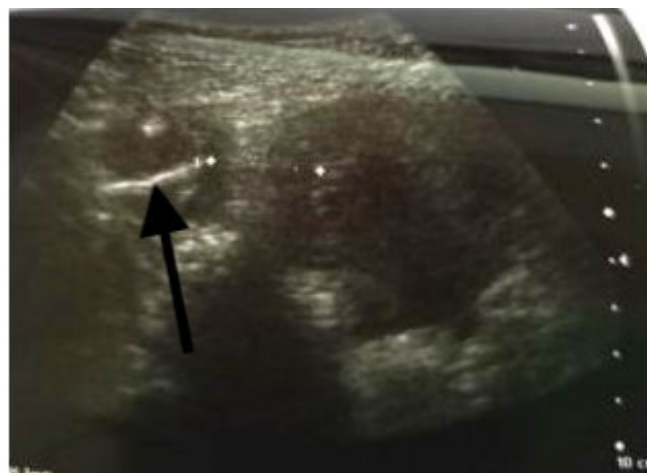


Figure 1. Abdominal ultrasound. The arrow shows a suspected IUD, but its actual location cannot be determined

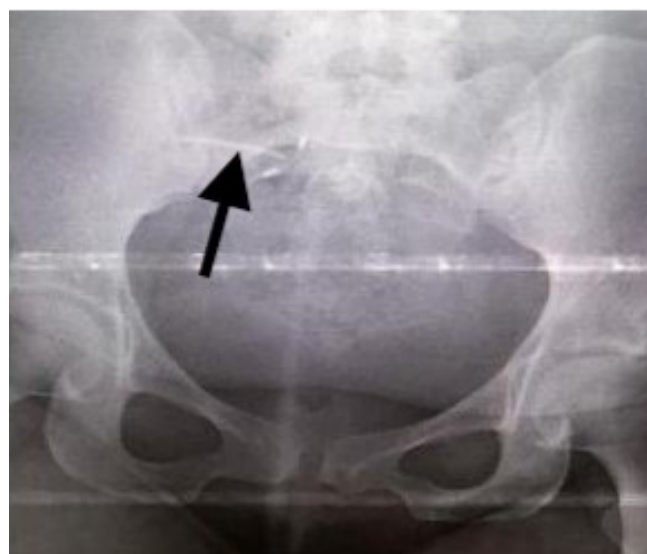


Figure 2. Plain pelvic X-ray without contrast. The arrow shows an inverted IUD in a position contrary to the expected upright "T."

## Discussion

A lost IUD where the string is missing during gynaecological examination can be identified with a plain pelvic X-ray but is unlikely to locate the site of the IUD. To locate the actual site of the lost IUD, the most accurate imaging technique is pelvic ultrasound and where appropriate pelvic CT scanning. Although the IUD is the most commonly reversible contraceptive method used worldwide, there are complications including uterine perforation.<sup>[2,6]</sup> The risk of migration and uterine perforation varies depending on factors like anatomical configuration of the uterus and

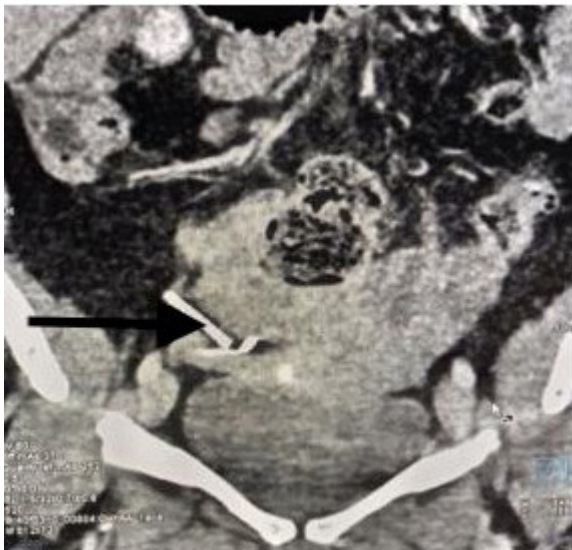


Figure 3. Computed Tomography (CT) of the pelvis. The arrow shows an inverted IUD in a position contrary to the expected normal upright "T." The IUD is partly embedded into the parametrium.



Figure 4. IUD string in the peritoneal cavity, a healthy right ovary, and a fallopian tube. The arrow shows a string of an IUD, as shown in Figures 2 and 3.

adhesions due to previous uterine surgery.<sup>[7]</sup> In order to avoid complications associated with IUD insertion it is recommended that a uterine sound is used to minimize the uterine perforation and especially in cases of previous malposition or uterine anomaly leading to difficult IUD insertion.

In our case the plain pelvic X-ray revealed a projecting IUD into the pelvic region in an inverted T shape but did not indicate whether it was in or outside of the uterus. This did not help in the final management of the lost IUD. Pelvic ultrasound imaging located the IUD 2.5cm away from the fundus of the uterus on the right side and part of it in the myometrium. This finding indicated that the IUD was in the endometrial cavity and 2.5cm from the fundus of uterus which is the normal position for IUD. The string was not visualized in the vagina. At hysteroscopy the IUD was not found in the site indicated by pelvic ultrasound and may have been imbedded deeply in the myometrium.<sup>[8,9]</sup> The pelvic CT scan reported a displaced IUD in the right myometrium extending into the peritoneum, so a laparotomy was carried out. An IUD was identified in the right fallopian tube with the string in the peritoneal cavity and the inverted T shape in the subserosa of the myometrium of the right fallopian tube, where it was found to be fixed.

The fimbria of the right fallopian tube and ovary were healthy as was the left fallopian tube and adnexae. This finding confirms that the plain abdominal X-ray and

pelvic ultrasound did not locate the lost IUD correctly. The pelvic CT scan concurred with the intraoperative finding.

Most uterine perforations occur during insertion of an IUD followed by immediate lower abdominal pain and dyspareunia. Our patient presented with a previously failed IUD insertion. Therefore, she was a candidate for Transabdominal Ultrasound Guided (TAUS-guided) insertion of an IUD. Other indications for this method of insertion include previous myomectomy, uterine fibroids, abnormal uterine position (extreme retroflexion/anteflexion or lateral deviation), and history of expulsion of an IUD as in this patient.<sup>[10]</sup> The standard operating procedure for high-risk women during IUD insertion includes the use of a tenaculum on the cervical lip to straighten the axis of the uterus and stabilize the uterus. The application of traction on the tenaculum is to reduce the risk of perforation—careful uterine sounding to confirm that the patient is a candidate for IUD. The tenaculum should be removed slowly, then the strings trimmed to fit around the cervix (2-3 cm). It is recommended that a follow-up evaluation be performed after two to four weeks.

Serial radiological investigation does not suffice in making a definitive diagnosis. It is documented that a plain pelvic X-ray is inferior for locating the site of IUD, though it will indicate the presence or absence of an IUD due to its radio opacity. However, in our case, several investigations

were performed but the exact location of the IUD was not confirmed until laparotomy.<sup>[11-15]</sup> Generally, abdominal pelvic ultrasound is the best technique for defining the site of the IUD. Additional radiological investigations, such as CT scanning, are recommended when there is suspected visceral injury.

The minimally invasive procedure, laparoscopy for a lost IUD is the most appropriate approach unless visceral perforation is suspected when laparotomy is indicated. For our case, following attempted hysteroscopy elsewhere and failure to locate the IUD, we suspected a perforation, and hence the indication for laparotomy after ultrasound confirmation of a migrated IUD.

Hysteroscopy, which was done elsewhere, reported a normal endometrial cavity. The migrated IUD from the endometrial cavity to the cornu of the fallopian tube posed a risk of visceral injury. Clinicians should individualize patient management based on investigation findings.<sup>[12]</sup>

## Conclusion

The plain abdominal X-ray has a limited diagnostic value in locating the site of a lost IUD but is useful in informing the clinician of its presence or absence. The location of a migrated IUD is best diagnosed by transabdominal ultrasound and where suspicions arise then abdominal pelvic CT scanning is advised. This case report should increase the awareness of this avoidable, but uncommon, complication. An immediate vaginal examination and pelvic ultrasound post-IUD insertion is advised. There was no obvious superiority of ultrasound over plain pelvic X-rays. Further tests were required to clarify the siting of the IUD and plan appropriate management.

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Conflicts of interest: None

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