

Tubal Migration of Intrauterine Device: A Report of a Rare Case of Trauma-Induced Migration Leading to Acute Abdomen

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Abstract

Intrauterine devices (IUDs) are the most commonly used reversible contraceptive methods. They are a highly effective and safe tool of contraception but might carry some uncommon complications including device migration. Trauma-induced trans-tubal migration has not been reported before. We encountered a 26-year-old woman who presented to the emergency department (ED) with left iliac fossa pain, 1 day following a fall-down trauma. She had a history of uneventful IUD insertion 3 months prior to presentation. In the ED, a standing KUB showed an extra-uterine intra-abdominal IUD. At laparoscopy, the IUD was found protruding through the isthmus part of the fallopian tube. Trauma to patients wearing IUDs should prompt fellow gynecologists to check the location of the device within 24 - 48 h. Recognition of this rare yet serious complication can be of benefit in the differential diagnosis of patients presenting to the ED with acute abdomen.

Keywords: Intrauterine device; Tubal migration; Acute abdomen; Laparoscopy

Introduction

Intrauterine device (IUD) is a highly effective method of reversible contraception [1]. Although it carries an acceptable safety record, some complications may arise during its insertion or its long-term use. Intra-abdominal IUD migration following uterine perforation at insertion is a rare complication [2]. Spontaneous trans-tubal migration is even rarer. This type

of migration was not reported following trauma. Herein, we report a case of trans-tubal migration of a copper T380A IUD and perforation of the tubal isthmus following a fall-down trauma.

Case Report

A 26-year-old G3P3A0L3 previously healthy woman presented to the emergency department (ED) because of moderate left iliac fossa pain, 1 day following a fall-down of the stairs. The pain was not associated with nausea, vomiting, vaginal bleeding or any other symptom. On physical examination, her vital signs were within normal ranges, and her abdomen was soft and non-distended. A localized left iliac fossa tenderness was noted without rebound tenderness. Vaginal examination was not performed. Basic laboratory tests showed normal urine analysis and hemogram. Pregnancy test was negative. Facing this clinical picture, the ED physician elected to perform a standing KUB that showed an IUD in the left iliac fossa (Fig. 1). The patient was then asked about the history of the IUD insertion. She stated that a copper IUD was inserted 3

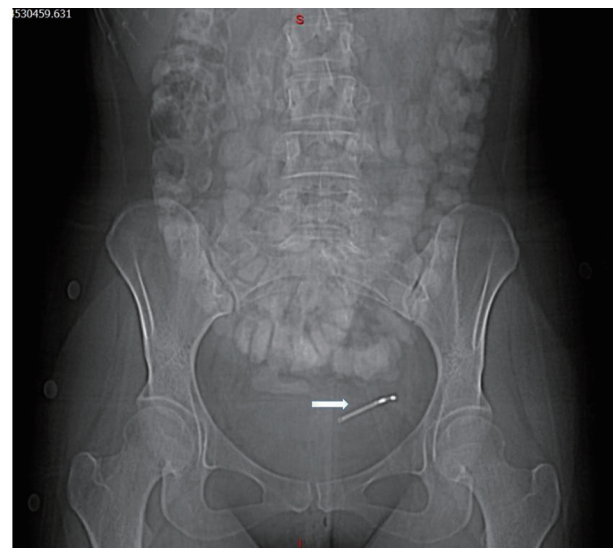


Figure 1. Abdominal X-ray showing the intrauterine device in the left iliac fossa (white arrow).

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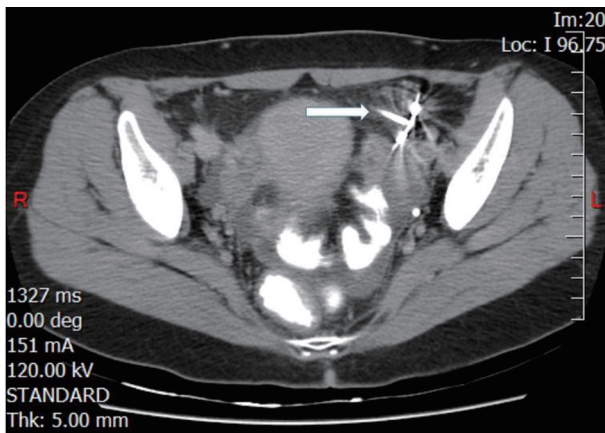


Figure 2. CT scan of the pelvis with intravenous and oral contrast localizing the intrauterine device in the left adnexa (white arrow).

months earlier by a trained gynecologist, 4 weeks postpartum. At routine follow-up 1 month post-insertion, a pelvic ultrasound showed properly placed IUD. After initial assessment in the ED, the patient was transferred to our service. CT scan of the pelvis with intravenous and oral contrast was done and confirmed the presence of the IUD in the left adnexa (Fig. 2). During diagnostic laparoscopy, we found that the IUD had perforated the left fallopian tube at the level of its isthmus creating an acute inflammatory response and adhesions of the omentum around it (Fig. 3). The gross appearance of the tube was otherwise normal, and no hydro- or pyosalpinx was seen. Using monopolar electrocautery, we lysed the adhesions and removed the IUD. The tubal perforation was left open. The patient was discharged on day 1 postoperatively. She was seen 1 month later in the clinic and her physical examination was unremarkable.

Discussion

Contraceptive methods are widely used by female patients for birth control. No single method can suit all women. Age, personal history, socio-economic status and other factors play an important role in the selection of the most suitable contraceptive tool. Among others, IUD is an effective non-surgical long-acting reversible contraceptive method with a pregnancy rate of less than 1 in 100 women per year [1]. Although it is highly safe, it may lead to some undesirable side effects ranging from menorrhagia, infection, expulsion, to the rare faulty insertion leading to uterine perforation [3].

Uterine perforation following IUD insertion is rare and accounts for 0.1% of cases [2, 4]. The perforation may be either complete if the IUD was found outside the uterus or partial when only a part of it has penetrated the myometrium. Following complete perforation, the IUD can migrate to different intra-abdominal structures such as the omentum, bowels, peritoneal cavity and bladder among others. Presenting signs and symptoms include missing thread, abnormal uterine bleeding, abdominal pain and pregnancy [5].

Instead of directly perforating the myometrium, the IUD

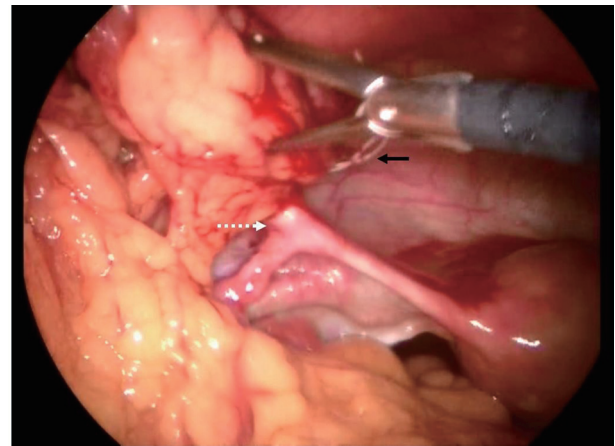


Figure 3. Laparoscopic view of the intra-abdominal IUD. The IUD perforates the isthmus of the left fallopian tube (white dashed arrow) creating adhesions of the omentum around it. The IUD thread is shown behind the laparoscopic clamp (black rigid arrow).

can rarely reach the abdominal cavity after migrating via the fallopian tubes [3, 6-11].

We conducted a literature search on MEDLINE database between 1976 and 2017 for articles reporting similar cases. All articles published with English abstracts were included. The search terms were: “intrauterine device” AND “trans-tubal migration”. The lists of references of these articles were also reviewed. In total we could find seven [3, 6-11] cases of trans-tubal IUD migration (Table 1), and none was due to trauma.

After reviewing the text of the aforementioned cases, we could not identify a common pattern related to the timing, method of insertion or the type of IUD. The exact mechanism of spontaneous trans-tubal migration remains obscure. Previous studies assumed that either the IUD was placed in the uterine cornua close to the tubal ostium at the time of insertion [9], or it was displaced toward the ostium due to the profound involution of the myometrium during the postpartum and lactation period [2]. However, in our patient the migration was not spontaneous. The IUD was in place as shown on pelvic ultrasound during routine follow-up, 1 month post-insertion. The single inciting event preceding migration was the trauma sustained 1 day before presenting to the ED.

Following trauma, it is wise to check the IUD location during the first 24 - 48 h in women wearing IUDs, even if they are asymptomatic. Imaging studies are the cornerstone in patients with a missed IUD thread. A simple abdominal X-ray can easily discern expulsion from migration. An ultrasound, CT scan or MRI of the abdomen and pelvis can then map the exact location of the migrating IUD and identify any associated visceral complication [12].

When an IUD is found in the abdominal cavity, whether to remove it or not is controversial, especially if the patient is asymptomatic [13]. It would, however, be desirable to remove it because of the high incidence of adhesions’ formation that can afflict permanent infertility, possible visceral injury and subsequent acute abdominal pain if left in place. Laparoscopy can be used as a first-line treatment even in the presence of

Table 1. Characteristics of the Seven Cases of Trans-Tubal Migration of Intrauterine Device Found in Literature Since 1976

Author	IUD type	Time from insertion to diagnosis	Presentation	Location	Outcome
Gunaratne [6]	27 Lippes	2 years	Right iliac fossa pain and pregnancy	Right tubal fimbriae	Open right salpingectomy
Kim et al [7]	35 Lippes	6 years	Accidental finding during laparoscopy for sterilization	Right tubal fimbriae	Laparoscopic removal of IUD and sterilization
Wikland and Wilhelmsson [8]	31 Copper-7	3 months	Absence of thread during routine exam	Right tubal ampulla	Open removal of IUD
Sindos et al [9]	33 Copper T380A	10 years	Right iliac fossa pain and menorrhagia	Right tube	Laparoscopic right salpingectomy
Ozdemir et al [10]	34 Copper T380A	8 years	Low abdominal pain	Left tube	Open left salpingectomy
Bharathi et al [11]	75 Lippes	40 years	Colicky epigastric pain, loose stool, weakness	Right tubal fimbriae	Laparotomy: removal of IUD, hemicolectomy for cecal adenocarcinoma
Nde-Ouedraogo et al [3]	34 Copper T380A	1 month	Pelvic pain and vaginal discharge	Left tubal isthmus	Open removal of IUD
The present case	26 Copper T380A	3 months	Left iliac fossa pain following a fall	Left tubal isthmus	Laparoscopic removal of IUD

IUD: intrauterine device.

adhesions or visceral injury [14]. In two out of the seven cases reviewed, laparoscopy was used to remove the IUD but the chronicity of migration and the tubal infection resulted in tubal sacrifice in both patients. In our case, the tube was minimally harmed and tubal preservation was feasible after securing good hemostasis.

The IUD remains one of the safest and highly effective methods of contraception even if some complications occur during its use. Intra-abdominal IUD migration via the fallopian is an extremely rare complication. Trauma-induced trans-tubal migration was not reported before. Hence, it is advisable to check the IUD location in patients using this method of contraception, in the first 24 - 48 h following trauma.

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