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## Pelvic abscess complicating sigmoid colon perforation by migrating intrauterine device: A case report and review of the literature



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### ABSTRACT

**INTRODUCTION:** Intrauterine devices (IUDs) are commonly used as a contraceptive method. However, they may cause rare but potentially serious complications such as migration through the uterine wall and gastrointestinal perforation.

**PRESENTATION OF CASE:** We report a case of a 26-year woman, carrying an IUD for 2 years, who presented to the emergency with pelvic pain with breakthrough bleeding. Abdominal imaging revealed the presence of two devices the first of which was located in the uterine cavity and the other in the wall of the sigmoid colon associated with a 5-centimeter pelvic collection. Intraoperatively, the IUD was found to be embedded in the wall of the sigmoid colon which was removed by wedge resection of the involved segment followed by a closure of the puncture with drainage.

**DISCUSSION:** The Intrauterine Device (IUD) is an effective method of contraception, relatively well tolerated, reversible, inexpensive and widely used. However, it is not without risk. Indeed, serious complications can occur such as uterine perforation and migration to adjacent abdomino-pelvic structures. Our observation illustrates its rarity given the fact that this complication has been observed the first time in our department over the last ten years.

**CONCLUSION:** The migration of IUD must be treated even in asymptomatic patients due to the risk of severe complications.

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## 1. Introduction

Intrauterine devices (IUD) are effective, safe, and widely used. Their use is about 14.7% in the developing countries and 8.9% in developed ones [1]. The perforation of the uterus by the IUD is a relatively rare complication whose incidence is estimated between 1.3 and 1.6 per 1000 insertions [2], but the consequences can be very serious. It can occur immediately or several years after the insertion of the device [3]. Ectopic migration of IUD with involvement of adjacent organs can cause catastrophic complications such

as gastrointestinal perforation [4]. Ideal treatment of IUD migration remains controversial [5].

We report a case of ectopic migration of IUD with perforation of the sigmoid colon and review the literature to discuss the clinical and morphological aspects and therapeutic modalities of this rare complication of IUD. This case has been reported in line with the SCARE criteria [6].

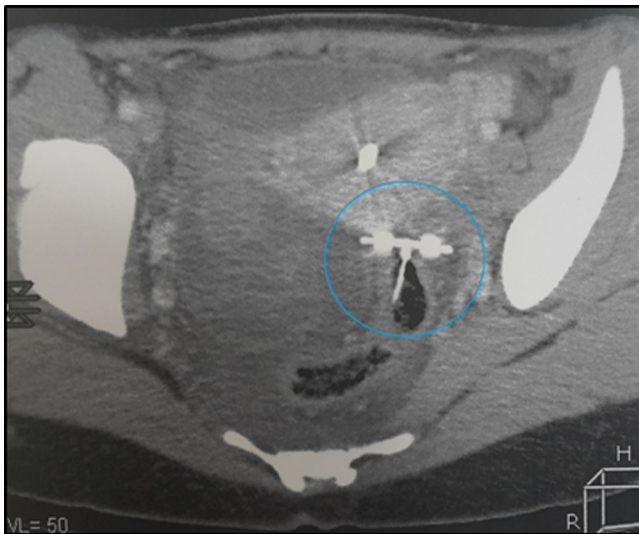
## 2. Patient and observation

A 26-year-old woman without any notable medical history, underwent vaginal delivery followed by a copper IUD insertion in the sixth week of the puerperal period. Six months later, during a routine check-up in a family planning center, the IUD string was not visualized. The presumptive diagnosis of spontaneous expulsion was made and a new copper IUD was inserted.

Two years later, the patient presented to our hospital for chronic pelvic pain, dyspareunia and several episodes of breakthrough bleeding.

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**Fig. 1.** Cross-section CT showing two devices, the first up in the uterine cavity and the second having an ectopic position which vertical branch is in the light of the sigmoid colon and both arms are embedded in the wall with a close 5 cm collection.

On clinical examination at admission, the patient had good general condition, hemodynamically stable with pelvic tenderness on pervaginal examination.

Laboratory test showed leukocytosis (WBC – 17,300 cells/mm<sup>3</sup>) and anemia (Hb – 9 g/dl).

The transvaginal pelvic ultrasonography revealed two IUDs: one in place within the uterine cavity and the other deep in the myometrium.

A radiograph of the abdomen without preparation showed two metal T devices, the first projecting next to the uterine cavity and the second close to the left iliac fossa suggestive of ectopic migration.

Abdominal CT confirmed the migration of the second IUD whose vertical arm was in the sigmoid colon while both arms were embedded in the wall with a 5 cm collection (Fig. 1). The transvaginal ultrasound and CT were discordant in their findings, and in this case the transvaginal ultrasound was incorrect in that it failed to recognize the extrauterine location of the IUD. The diagnosis of uterine perforation with IUD migration was made and surgical removal was planned. Initially laparoscopic removal was attempted, however, because of intense local inflammation and adhesions, conversion to laparotomy was performed. On midline infraumbilical laparotomy, an IUD was found to be embedded in the wall of the sigmoid colon (Figs. 2 and 3). The device was removed by wedge resection of the involved segment followed by closure of the perforation, and drainage of the abdominal cavity. The postoperative course was uneventful. On follow-up at 12 months, patient was asymptomatic, the IUD was removed and replaced with oral contraception.

### 3. Discussion

The Intrauterine Device (IUD) is an effective method of contraception, safe, relatively well tolerated, reversible, inexpensive and widely used [7]. However, it is not without risk. Indeed, serious complications can occur such as uterine perforation and migration to adjacent abdomino-pelvic structures [4].

Generally, the perforation occurs through the posterior wall of the uterus [8]. It may be partial, limited to the uterine wall, or total, possibly located in the peritoneal cavity or in 15% of cases, reaching the adjacent organs [4,9]. In this case, the digestive organs are most involved with a clear predominance for the sigmoid colon



**Fig. 2.** Intraoperative images showing a device embedded in the wall of the sigmoid colon.



**Fig. 3.** Intraoperative image showing perforation of the sigmoid colon after removal of the device.

(40.4%), followed by the small intestine (21.3%) and rectum (21.3%) [4,10,11].

The risk factors for the occurrence of uterine perforation by the IUD can be linked to the device itself such that its structure and components or the nature and rigidity of the inserted tube. These risk factors may also be linked to the patient himself such as the size, position, or the anatomical configuration of the uterus and the insertion period (postpartum and post abortion) [12]; they may as well be linked to the operator such as experience and training, or the insertion technique. Indeed, there is a correlation between uterine perforation and experience of the practitioner, not his profession. To avoid complications, it is recommended that the IUD insertion procedure be performed by an experienced and well-trained doctor or midwife [13]. In our case, the insertion was performed by a trained physician.

In most of the cases, uterine perforation is primary or iatrogenic, occurring immediately upon insertion, but often goes unnoticed [4,8,11,14]. For early detection, some authors recommend a transvaginal ultrasound to be performed immediately after insertion, especially when it is difficult or reported by the patient as being very painful [14]. However, the routine use of post-insertion ultrasound may be limited by availability and mandating such follow up may restrict access to effective intrauterine contraception in some resource-limited areas. The perforation can also be secondary or late occurring spontaneously during the first year after insertion in half of cases [15]. The literature review revealed that IUD

migration, whether primary or secondary, can remain silent in 85% of cases [3] revealing itself just by the disappearance of the mark string or during an unwanted pregnancy in 30% of cases [5,12,16]. However, some symptoms can appear very late and be diverse and vary depending on the location of the ectopic IUD [2,15]. These symptoms may be abdominal pain, which is the major presenting symptom in 55.3% of cases [11], breakthrough bleeding [7–9,12], disorders of the lower urinary tract [2] or even infertility due to adhesions created by inflammatory phenomena induced by copper devices in the peritoneal cavity [9,14]. Migration of IUD may also be revealed by a serious complication particularly in connection with gastrointestinal perforation, such as acute intestinal obstruction, fistula, intra-abdominal abscess or even as peritonitis [2,8,10]. In our case, IUD migration was revealed by pelvic abscess complicating perforation of the sigmoid colon. This complication is found in 15–20% of cases [17]. In the absence of severe complications, the triad made of abdominal pain with fever and diarrhea in woman with IUD in situ should alert the clinician to a possible gastrointestinal perforation [8,9,15,18]. In the literature, some cases of gastrointestinal perforation were revealed by the excretion of the IUD thread through the anus [19].

In all the suspected cases, gynecological examination should be performed to check the position of the IUD. Some authors even recommend, regular check-up at 6–12 weeks after insertion to ensure proper deployment and position of the IUD, then once every 2 years to watch for a possible complication [17]. In our case, the patient had a gynecological examination 6 months after IUD insertion, however, the presumptive diagnosis of spontaneous expulsion of IUD was made without conducting appropriate tests. The diagnosis of spontaneous expulsion of the IUD cannot be retained without completion of X-ray abdomen and transvaginal ultrasound [14,17]. However, in the present case ultrasound failed to recognize the extrauterine location of the IUD. It has been found that ultrasound cannot clearly reveal the exact location of the IUD in case of intra-peritoneal migration especially when it is surrounded by omentum and intestines, in which case abdominal pelvic CT can be used to confirm the location of ectopic IUD and detect any complication [13]. What to do for an uncomplicated and asymptomatic IUD migration remains controversial [5,14,17]. Some authors, such as Markovich [20] or Adoni and Ben Chetrit [21] claim that it is not mandatory to remove the IUD in this case and advocate simple monitoring [8,12,15] due to the risk of intra-operative secondary migration [17] and to avoid the inherent morbidity of surgery and anesthesia [9]. However, most experts, including the World Health Organization (WHO) and the International Federation for Family Planning (IPPF) recommend the surgical removal of the device once the migration is diagnosed before the occurrence of severe complications [8,12,17]. In our observation, IUD migration was practically asymptomatic for two years, getting complicated by local peritonitis associated with colonic perforation. This complication could have been avoided if the ectopic IUD was diagnosed and removed early.

Our literature review on ectopic IUD surgical extraction techniques found that laparoscopy is considered the first-line treatment [7,8]. However, some authors argue that there is no significant superiority over the open technique. In the literature, the success rate of laparoscopy varies between 44 and 100% depending on the number of cases, the type of abdominal complications and the surgeon's experience [14]. The existence of multiple adhesions was identified as the major factor for conversion into open surgery after a first laparoscopy [8,10]. In our case, we first tried to remove the IUD laparoscopically, but the extent of adhesions made the identification of the IUD difficult and the dissection very risky; hence the conversion to a sub umbilical laparotomy was made. In some situations, such as a complicated gastrointestinal perforation peritonitis, intra-peritoneal abscess or fistula, laparotomy is sometimes

recommended immediately in order to remove the device and treat the complication [18].

In a group of well-selected patients with uncomplicated asymptomatic silent perforations, minimally invasive techniques including endoscopy can be used to extract the IUD [2,9]. Colonoscopy may be indicated when the device is located in the digestive lumen or at the innermost portion of the colon wall. Indeed, in certain situations, the IUD can be embedded in the colon wall or adjacent structures [10] which may get injured while trying to pull the IUD string. Therefore, it is recommended that the withdrawal is carried out only under direct vision of the entire IUD [14]. The limitation of the endoscopy is that the removal of the IUD without closing the colonic perforation can lead to severe intra-abdominal infectious complications [4].

#### 4. Conclusion

The migration of IUD is usually discovered incidentally during a routine check-up or after recognition of a loss of a mark string by the patient. The diagnosis must rely on additional morphological examination to locate the device. The treatment of choice is a surgical removal even in asymptomatic patients due to the risk of severe complications. Our experience suggests that the withdrawal of a local ectopic IUD laparoscopically may be attempted but may encounter difficulties indicating intra-operative conversion to an open surgery.

#### Conflicts of interest

The authors declare that they have no conflict of interest.

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#### Ethical approval

The study was approved by Ethics Committee of Hospital fatouma bourguiba monastir.

#### Consent

Written informed consent was obtained from the patient.

#### Author contribution

Omar toumi – Data collection, editing of manuscript.  
 Housseem Ammar – Data collection, editing of the manuscript.  
 Ibtissem Korbi – Histopathological examination of the specimen and reporting, data collection.  
 Amine Chhaidar, Randa Salem, Rahul Gupta, Mohamed Nasr, Khadija zouari, Abdessalem Ghdira, Anis Karkeni, Mondher golli, Jamel Saad – Editing of the manuscript.  
 Faouzi Noomen – Drafting of manuscript, literature review.

#### Guarantor

Omar Toumi and Housseem Ammar.

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