

## Case Report

## Ileal Perforation after Intrauterine Device Insertion

Suleiman Ghunaim<sup>1</sup>, Raja Sayegh<sup>2</sup>, Dina Chamsy<sup>1</sup>, Bassem Safadi<sup>3</sup>, Dib Sassine<sup>1</sup>, Omar Odeh<sup>4</sup>, Johnny Awwad<sup>1</sup><sup>1</sup>Department of Obstetrics and Gynecology, Faculty of Medicine, American University of Beirut, Beirut, Lebanon<sup>2</sup>Department of Obstetrics and Gynecology, Boston Medical Center, Boston, USA<sup>3</sup>Department of Surgery, Gilbert and Rose-Marie Chagoury School of Medicine, Lebanese American University Medical Center, Beirut, Lebanon<sup>4</sup>School of Medicine, the University of Jordan, Amman, Jordan**\*Correspondence to:** Suleiman Ghunaim, Department of Obstetrics and Gynaecology, Faculty of Medicine, American University of Beirut, Beirut, Lebanon

PO Box 11-236. Riad El-Solh 1107 2020; Tel: 00962795933952; E mail:suleimanghunaim@gmail.com

**Received:** Jan 29<sup>th</sup>, 2021; **Accepted:** Feb 3<sup>rd</sup>, 2021; **Published:** Feb 5<sup>th</sup>, 2021**Citation:** Ghunaim S, Sayegh R, Chamsy D, Safadi B, Sassine D, Odeh O, Awwad J. Ileal perforation after intrauterine device insertion. *Gyne and Obste Open A* *Open J.* 2021; 2(1): 35-37. doi: [10.33169/gyne.Obste.GAOOAJ-2-109](https://doi.org/10.33169/gyne.Obste.GAOOAJ-2-109)**ABSTRACT**

The intrauterine contraceptive device is the second most popular form of contraception worldwide. Uterine perforations may rarely complicate intrauterine contraceptive device use and are believed to occur mostly at the time of insertion. In the majority of cases, perforations are not recognized by the operator and remain asymptomatic. In rare instances however, severe delayed complications involving adjacent organs may ensue. We report an unusual case of uterine perforation with bowel injury diagnosed two years after the insertion of a copper intrauterine contraceptive device. We aim to address the use of transvaginal sonography to confirm proper intrauterine contraceptive device placement following a technically challenging insertion, clinical surveillance, and prompt removal of an intraperitoneal intrauterine contraceptive device to prevent potential serious complications, such as bowel embedment.

**Keywords:** Bleeding; Bowel injury; Contraception; Intrauterine contraceptive device; Uterine perforations.**Abbreviations**

IUD: intrauterine contraceptive device; G2P2: Gravidity 2 Parity 2.

**INTRODUCTION**

The intrauterine contraceptive device (IUD) is the second most popular form of contraception worldwide, thanks to its record of safety, reversibility, and long-term user independent efficacy. While IUD insertions are easily done by a multitude of trained and licensed professionals in an office setting, proper informed consent is required to ensure the patient is aware of side effects, alternative contraceptive options as well as rare potential risks.

One such rare but potentially serious risk of IUD insertion is uterine perforation, with an estimated incidence of 0.4-2.2/1000.<sup>1</sup> Uterine perforations are believed to happen mostly at the time of insertion.<sup>2</sup> Factors associated with perforation risk at insertion include technical proficiency of the operator, interval since delivery in postpartum and lactating women,<sup>3</sup> and cervical/uterine anatomy. In the majority of cases, perforations are asymptomatic or may manifest mild symptoms of

abnormal uterine bleeding and/or abdominal pain.<sup>4</sup> In rare instances, they may lead to more severe complications involving adjacent organs namely bowel and bladder.<sup>2,5</sup>

We here in report on an unusual case of uterine perforation with bowel injury diagnosed two years after the insertion of a Multiload 375° copper IUD.

**CASE REPORT**

26 year old G2P2 presented for an IUD checkup. She had a Multiload-375 Copper IUD inserted 6 weeks post her cesarean delivery 2 years prior to insertion. Insertion was reported to be difficult and traumatic and had to be finally completed under intravenous sedation in an operating room setting. We have no documentation as to whether insertion was done under ultrasound guidance or not. One month after the insertion, the IUD strings were visualized on routine checkup. The patient had been completely asymptomatic for the past 2 years however

more recently, she reported new onset of intermittent diffuse abdominal cramping, unrelated to her menstrual cycle.

Upon examination, the IUD strings were not visualized. A pelvic ultrasound was performed in the office and failed to identify the IUD in the endometrial cavity. Plane frontal radiography was obtained, however, was inconclusive because the IUD appeared in the lower mid-pelvis and would not differentiate between an intrauterine versus an extra-uterine location.

Therefore, Computerized Tomography of the abdomen and pelvis was obtained, and revealed the IUD to be located in the abdomen at the level of the second sacral vertebra. Patient agreed to proceed with laparoscopic surgery to retrieve the intraperitoneal IUD. Diagnostic laparoscopy showed two threads protruding from a dense mass of adhesions involving a loop of small bowel and the sigmoid colon. The body of the IUD was completely embedded within and could not be visualized (Figure 1). Careful sharp dissection of the matted loops of bowel revealed most of the IUD to be actually embedded within the lumen of the ileum (Figure 2). At this time, the general surgery team was consulted for assistance and a partial ileal resection and end-to-end anastomosis was accomplished laparoscopically. The attenuated serosa of the sigmoid colon at site of adhesiolysis was also reinforced with intra-corporeal sutures and tested by air insufflation using intraoperative sigmoidoscopy. The patient had a smooth recovery and was discharged on the second post-operative day.

Figure 1. Perforation site along with the IUD strings protruding away from the small bowel

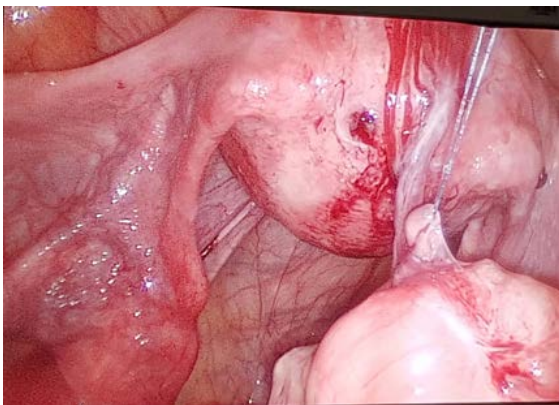
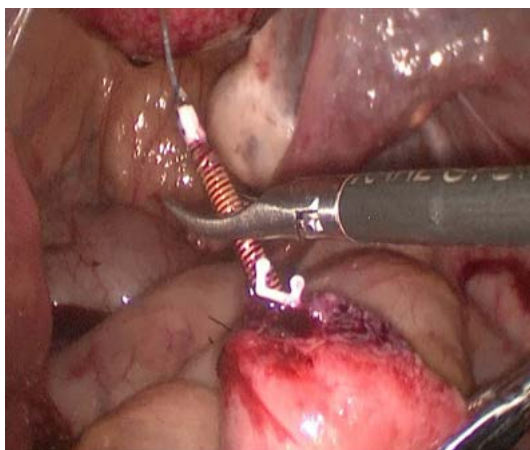


Figure 2. Body of the IUD completely embedded in the Lumen



## DISCUSSION

Uterine perforation is a rare and often asymptomatic complication of IUD insertions with an estimated incidence of less than 0.1%, but may be associated with serious delayed complication as illustrated in this case.

Bowel injury is believed to occur in only a small fraction of perforated IUD insertions. In a systematic review, Gill et al. 2012 evaluated 179 uterine perforations from IUD insertions reported in the literature. Nineteen cases involved bowel injuries with four requiring bowel resection. Although valuable in confirming the medical hazards of perforated IUDs, this case series may have overestimated the rate of bowel injury as a result of publication bias.

A few studies argue for expectant management of perforated IUDs due to the low risk of delayed visceral injuries,<sup>6,7</sup> however, the main limitation was the short term follow up post IUD insertion probably leading to under-reporting to the late severe complications.

Despite the rarity of visceral injury resulting from perforated IUDs, the morbidity from such a complication has led the World Health Organization as well as the American College of Obstetrics and Gynecology to recommend prompt surgical removal of the perforated IUD.

Although most perforated IUD retrievals are straightforward, ours was challenging due to bowel involvement. Given that the patient was lost to follow up for two years post IUD insertion, the exact chronology and sequence of events that led to this delayed visceral injury are not precisely determined. We offer below some hypothesis and reasoning behind this patient's IUD perforation, migration, and subsequent bowel embedment:

### Uterine Perforation

We speculate that partial perforation likely occurred at the time of the difficult IUD insertion. This patient did indeed have a number of risk factors which have been reported in the literature to be associated with a 2-8 fold increase in risk of perforation, including lactational amenorrhea, short interval since delivery and technical difficulties during insertion requiring use of intravenous sedation.<sup>3,5,8</sup> While ultrasound use during, or immediately post insertion may have helped detect a significant perforation, the sensitivity of sonography for detection of minor or partial perforations is not clear and may depend on the skill of the sonographer, resolution of machine and variable factors that impact the sensitivity of sonography eg. Shadowing from bowel gas and presence of small fibroids. Furthermore, in the absence of conclusive cost effectiveness studies, access to sonographic equipment at time of IUD insertions remains variable. Perforation by IUD might occur as a result of postpartum fragile uterus and abnormal placentation such as vesicular mole.<sup>9</sup> However, the most encountered cause for uterine perforation is the methods used in criminal abortion.<sup>10</sup>

### IUD Transmigration

Progressive IUD migration of the IUD through the uterine perforation into the peritoneal cavity may have occurred progressively over time aided by uterine contractions once postpartum menstrual function had resumed. The disappearance of the IUD strings from the initial post-insertion checkup to the patient's evaluation 2 years later reinforces the idea that intra-peritoneal IUD migration was progressive in nature and not acute. Therefore, surveillance for IUD presence and stability after

two to three menstrual cycles, particularly after difficult IUD insertions, may be beneficial, even if an immediate post insertion sonography was done and found to be reassuring. This can be done clinically at first by looking for IUD strings on speculum exam and sonographically as needed when the strings are not visible. This also adds the benefit of the ability to intervene and prevent an unwanted pregnancy in women who have unknowingly lost the contraceptive efficacy of the IUD due to asymptomatic displacement. It should be noted that in a prospective study, Kroon et al. suggested that routine ultrasound monitoring was more likely to increase the rate of unnecessary interventions, and that it should be reserved to clinically doubtful insertions.<sup>11</sup>

### Bowel Perforation

We speculate that while the IUD was extruding through the fundus, its copper containing elements came into contact with the adjacent recto-sigmoid serosa resulting in chronic sterile inflammatory serositis and ultimately involving a loop of ileum leading to small bowel adhesions to sigmoid, engulfment of the IUD and progressive erosion and embedding into the bowel lumen after which the process became clinically symptomatic. In fact, compared to levonorgestrel releasing IUDs, copper IUDs are known to be inflammatory in nature and as a result of that, our patient was noted to have dense intra-peritoneal adhesions. This copper induced inflammatory response has been theorized to occur at the endometrial level and contribute to their contraceptive efficacy of the properly placed copper IUD [6]. Based on our case report, the laparoscopic approach offered a clear panoramic view of the pelvis and a minimally invasive strategy for removal to minimize the risk of progressive bowel wall erosion and severe complications. This concurs with that, most women with a transmigrated IUD, regardless of type, would want it removed.

Taken together and on the basis of a single case report describing visceral injury due to a perforated copper IUD, the routine use of ultrasound for confirmation of proper placement following a technically challenging insertion may be of benefit. Moreover, clinical surveillance for IUD stability after few menstrual cycles could potentially identify delayed IUD migration following partially perforated or improperly placed IUDs. Prompt management of perforated and/or migrated copper-IUDs is a must to avoid potentially serious long term bowel complications, and this can be accomplished laparoscopically.

### ACKNOWLEDGMENTS

No funding of any kind has been provided for this manuscript.

### CONFLICTS OF INTEREST

None.

### REFERENCES

1. Andersson K, Ryde-Blomqvist E, Lindell K, et al. Perforations with intrauterine devices: Report from a Swedish survey. *Contraception*. 1998; 57(4): 251-255. doi: [10.1016/s0010-7824\(98\)00029-8](https://doi.org/10.1016/s0010-7824(98)00029-8)
2. Zakin D, Stern WZ, Rosenblatt R. Complete and partial uterine perforation and embedding following insertion of intrauterine devices. I. Classification, complications, mechanism, incidence, and missing string. *Obstet Gynecol Surv*. 1981; 36(7): 335. doi: [10.1097/00006254-198108000-00001](https://doi.org/10.1097/00006254-198108000-00001)
3. Kaislasuo J, Suhonen S, Gissler M, et al. Intrauterine contraception: incidence and factors associated with uterine perforation—a population-based study. *Hum Reprod*. 2012; 27(9): 2658-2663. doi: [10.1093/humrep/des246](https://doi.org/10.1093/humrep/des246)
4. Kaislasuo J, Suhonen S, Gissler M, et al. Uterine perforation caused by intrauterine devices: Clinical course and treatment. *Hum Reprod*. 2013; 28(6):1546-1551. doi: [10.1093/humrep/det074](https://doi.org/10.1093/humrep/det074)
5. Gill RS, Mok D, Hudson M, et al. Laparoscopic removal of an intra-abdominal intrauterine device: Case and systematic review. *Contraception*. 2012; 85:15-18. doi: [10.1016/j.contraception.2011.04.015](https://doi.org/10.1016/j.contraception.2011.04.015)
6. Adoni A, Chetrit AB. The management of intrauterine devices following uterine perforation. *Contraception*. 1991; 43(1): 77-81. doi: [10.1016/0010-7824\(91\)90128-3](https://doi.org/10.1016/0010-7824(91)90128-3)
7. Markovitch O, Klein Z, Gidoni Y, et al. Extrauterine mislocated IUD: Is surgical removal mandatory? *Contraception*. 2002; 66(2): 105-108. doi: [10.1016/s0010-7824\(02\)00327-x](https://doi.org/10.1016/s0010-7824(02)00327-x)
8. Heinemann K, Reed S, Moehner S, et al. Risk of uterine perforation with levonorgestrel-releasing and copper intrauterine devices in the European Active Surveillance Study on Intrauterine Devices. *Contraception*. 2015; 91(4): 274-279. doi: [10.1016/j.contraception.2015.01.007](https://doi.org/10.1016/j.contraception.2015.01.007)
9. Hegazy A. Clinical Embryology for medical students and postgraduate doctors. LAP; Lambert Academic Publishing, Berlin, 2014. Website: <https://www.lap-publishing.com/catalog/details/store/gb/book/978-3-659-54516-0/clinical-embryology-for-medical-students-and-post-graduate-doctors>
10. Singla R, Gaba N, Naik AL, et al. Rupture of Unscarred Uterus with Intestinal Prolapse from Vagina following Criminal Abortion. *Cureus*. 2020; 12(9): e10601. doi: [10.7759/cureus.10601](https://doi.org/10.7759/cureus.10601)
11. Kroon CD, Houwelingen JV, Trimbos JB, et al. The value of transvaginal ultrasound to monitor the position of an intrauterine device after insertion. A technology assessment study. *Hum Reprod*. 2003; 18(11): 2323-2327. doi: [10.1093/humrep/deg433](https://doi.org/10.1093/humrep/deg433)