Laparoscopic Removal of Intra-Abdominal Intrauterine Device: A Case Report and Literature Review

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ABSTRACT

Introduction: Uterine perforation with an intra-abdominal intrauterine device (IUD) resulting in consultation to a general surgeon is rare. However, migrated IUD due to uterine perforation, regardless of the severity of symptoms, should be promptly removed surgically to avoid further bowel perforation or obstruction. We report a case of intra-abdominal IUD utilizing laparoscopic removal. Case: A 28-year-old woman who suffered from vaginal spotting for six months following levonorgestrel IUD (Mirena®, Bayer, Leverkusen, Germany) implantation. An initial diagnostic workup, including the performance of a transvaginal ultrasound, pelvis X-ray, and pelvic computed tomography (CT) scan, was completed to localize the IUD. Then, laparoscopy was performed to remove the device smoothly. Conclusions: Intra-abdominally-located IUDs due to uterine perforation are usually diagnosed by gynecologists, but further consultation to general surgeons can be encountered sometimes. Imaging studies such as pelvic X-ray or abdominal CT are recommended to assess adjacent organ involvement or perforation. Laparoscopic extraction are feasible and beneficial in most cases.

Keywords: intrauterine device, intra-abdominal, uterine perforation, contraception

INTRODUCTION

Intrauterine devices (IUD) are one of the most common forms of reversible contraception used in developing countries, with the United Nations reporting that around 14% of women worldwide were relying upon this method of birth control in 2009. Though IUD use is generally safe, effective and tolerable, the expulsion or migration of an IUD has been reported rarely, with potentially serious complications. Uterine perforations are rarely encountered following IUD implantation, and can result in the IUD migrating to the pelvic or intra-
abdominal cavity due to uterine rupture[1-3].

Patients with uterine perforation might present with different signs and symptoms, depending on the distance of IUD migration and the intra-abdominal organ(s) it may have interfered with. Some individuals might appear symptomless, while others may suffer from severe symptoms. A migrated IUD that has perforated the uterus, regardless of the severity of symptoms, however, should be promptly removed surgically in order to avoid further bowel perforation or obstruction[2]. Herein, we report a case of intra-abdominal IUD that utilized laparoscopic removal.

CASE REPORT

A 28-year-old, gravid 2, para 2 woman was admitted to our ward with the presentation of vaginal spotting since six months, which was not long after she had undergone levonorgestrel IUD (Mirena®, Bayer, Leverkusen, Germany) implantation at a gynecological clinic. Neither difficulty nor complication was noted upon placement of the device. Her medical history revealed no previous abdominal or urological surgery. She reported visiting the gynecological clinic since implantation, where a series of examinations were performed. The physical examination revealed a lack of visualized IUD strings, followed by a transvaginal ultrasound that revealed no signs of IUD in the uterus. Then, a pelvis X-ray study was obtained, which showed the IUD in the pelvic cavity (Figure 1). An abdominal/pelvic computed tomography (CT) scan localized the IUD in the cul-de-sac, left posterolateral to the uterus, with mild ascites (Figure 2). The patient was referred to one of our general surgeons, and a laparoscopic procedure was arranged after obtaining informed consent from the patient.

The patient was placed in the Trendelenburg position. A 10-mm cannula trochar was inserted below the umbilicus in line with the standard procedure. Two additional accessory trochars were placed at the left lower quadrant area and McBurney’s point, respectively. Two 5-mm grasping forceps were introduced through the cannulas to elevate the uterus and obtain traction of the bowel. The IUD was identified in the pouch of Douglas, with mild adhesion and ascites seen after careful observation (Figure 3). It was mobilized and removed by endo-bag smoothly, without electrocautery, under laparoscopic guidance. A Jackson-Pratt drain catheter was inserted after the procedure. The postoperative course was uneventful, and the patient was discharged 48 hours after the operation.

DISCUSSION

Though IUD use is a safe, well-tolerated choice of long-term contraception for women, associated issues such as lower urinary tract symptoms, stone formation around the IUD, uterovesical fistula and even stricture of the recto-sigmoid colon have been seen[1, 3]. Uterine perforation is one of the most serious complications associated with IUD implantation, as the device can perforate through the uterine wall and into the digestive, gynecologic or urinary system organs[4].

Patients present with a variety of symptoms following uterine perforation of an IUD, albeit predominantly pelvic pain and/or vaginal bleeding, while others might be asymptomatic with a missing IUD string at pelvic examination[2, 3, 5]. Severe associated morbidities have been reported, including infection with abscess formation, intravesical
calculi, bowel infarction, rectal strictures and rectouterine fistula[3, 4, 6]. Although vaginal spotting is a common symptom of the micronized progestosterone effect that occurs following Mirena® (Bayer, Leverkusen, Germany) insertion, vaginal spotting due to a misplaced IUD should as well be associated with other signs of device migration, such as missing threads, abdominal pain or pregnancy[7]. Further examinations such as X-ray are warranted to differentiate between progesterone effect and IUD misplacing.

Risk factors contributing to uterine perforation include type of IUD (i.e., copper), insertion technique, insertion in the postpartum period, lactation and amenorrhea[8, 9]. Compared with copper intrauterine devices (Cu-IUDs), newer levonorgestrel-releasing intrauterine systems (LNG-IUS) have been utilized significantly for years. A retrospective study of 75 patients (54 LNG-IUS and 21 Cu-IUD) treated surgically for uterine perforation showed that 71% of perforations were symptomatic. Asymptomatic patients were diagnosed during follow-up visits or because of unintended pregnancy. Common symptoms were abnormal bleeding and/or abdominal pain and pregnancy. Intra-abdominal adhesion and pregnancy are more common among women using Cu-IUDs than those using LNG-IUS[5]. In addition to the known risk factors attributed to intra-abdominal IUD presence, other possible considerations associated with IUD uterine perforation are breastfeeding at time of insertion and time of less than 36 weeks since previous delivery. Clinicians and women who decide to use IUD contraception should be aware of the risk factors, and should adjust the timing of insertion accordingly. Mirena® insertion should be delayed until six weeks after delivery[10].

Figure 1. An X-ray shows the IUD in the pelvic cavity.

Figure 2. A CT scan shows the IUD in the cul-de-sac, left posterolateral to the uterus (white arrow).

Figure 3. Visualization of the IUD during laparoscopic procedures (white arrow).
If a misplaced IUD is suspected, the diagnosis of IUD/IUS perforation is usually straightforward. If no IUD string can be visualized on speculum examination, a combination of transvaginal ultrasound and abdominal X-ray are often sufficient to successfully diagnose a uterine perforation. Abdominal CT scan/magnetic resonance imaging are also good options to help locate a migrated IUD, and to assess for complications such as perforation of the uterus or nearby organs, the presence of adhesions, or abscess formation, in a hospital setting[5, 11].

The World Health Organization recommends that an intra-abdominal IUD should be removed as soon as possible after the diagnosis has been made, regardless of type, locations or symptoms[12]. According to the literature, laparoscopic surgery should be the first option in removing a perforated IUD, as improvement of the technique of minimally invasive surgery has been widespread, and it is typically safer and with fewer complications. Conversion to laparotomy after attempted laparoscopic removal may be needed in cases involving bowel perforation, sepsis, or major adhesion[13-15]. It is necessary to visualize the entire device before it is removed because applying force to a partly visible device may cause serious damage to nearby structures if the device is partially embedded. Preoperative localization of the device can lower the risk of organ injury and the need to change to open surgery. The risks of open surgery conversion mostly depend on the final site of the misplaced IUD. The removal of a displaced IUD that involves both abdominal and pelvic organs has a higher risk of open surgery and those related only to pelvic organs had the lower risk[4, 16].

In conclusion, though intra-abdominal IUD presence due to uterine perforation is usually diagnosed by gynecologists, further consultation with general surgeons can occur, especially for those with distal IUD migration to the digestive system or with intestine perforation. The symptoms of IUD migration can be nonspecific, requiring a high degree of suspicion. Imaging techniques such as pelvic X-ray or abdominal CT are recommended to check for adjacent organ involvement or perforation if IUD migration is suspected[17]. Laparoscopic removal of intra-abdominal IUD is feasible and beneficial in most cases.

REFERENCES


[6]. Boortz HEM, D.A.; Ragavendra, N.: Migration of intrauterine devices: radiological


腹腔鏡移除腹腔內子宮內避孕器：
病例報告和文獻回顧

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中文摘要

引言：因腹腔內子宮內避孕器（Intrauterine device, IUD）而導致子宮穿孔且需要諮詢外科醫師的狀況不常見。無論症狀輕微或嚴重與否，因子宮穿孔而移位的子宮內避孕器，都需要立即進行手術取出，以避免造成進一步的腸穿孔或腸阻塞等併發症。以下案例是一個藉由腹腔鏡手術將子宮內避孕器取出的個案。

案例：本個案的是一名 28 歲的女性，在植入蜜蕊娜子宮內避孕器（levonorgestrel IUD - Mirena）後不久開始出現陰道點狀出血症狀，並持續了 6 個月。我們藉由陰道超音波，骨盆攝影和骨盆腔電腦斷層掃描等檢查來定位子宮內避孕器所在點。定位完成後即進行腹腔鏡手術，安全的將子宮內避孕器取出。

結論：腹腔內子宮內避孕器造成的子宮穿孔，多數是由婦科醫師診斷出來，但有時會遇到需要進一步諮詢一般外科醫生的情況。此時我們建議安排骨盆腔攝影和骨盆腔電腦斷層掃描，以確認鄰近器官是否受到影響或穿孔。對於大多數情況，腹腔鏡移除術是可行並且有利的。

關鍵字：子宮內避孕器、腹腔內、子宮穿孔、避孕

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