Intraperitoneal Migration of Lippes Loop (Intrauterine Device): A Case Report*

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ABSTRACT

Intrauterine device use as contraception offers the benefits of being affordable, long-acting, highly effective, and reversible. However, like any foreign body, it can be prone to certain complications, at times, with very serious consequences. Migration is the rarest but most feared complication.This is a report of the case of 72-year old woman with anine-month history of right lower quadrant abdominal pain. Work ups pointed to a migrated intrauterine device.The patient subsequently underwent laparoscopic removal of the foreign body with omental biopsy which laterrevealed metastatic adenocarcinoma from a primary ovarian malignancy.

INTRODUCTION

Intrauterine Device Insertion the most common contraceptive method used worldwide. In 2019, 23.7 percent of women have been labelled as currently using contraception, that is, 219 million womenrely on female sterilisation. Three other methods have more than 100 million users worldwide, male condom (189 million), IUD (159 million) and the pill (151 million). Specific contraceptive methods varywidely across the world. Method mix has shifted over time due to changes in related policies, changes in health-care system, development of new technologies, and changes in access to the various methods.[i]

The first Lippes Loop intrauterine device (IUD) was introduced in 1962. It was a plastic double "S" loop, a trapezoid shaped IUD that closely fit around the contours of the uterine cavity, reducing the incidence of expulsion. This IUD was commonly used from the 1960's to the 1980's. Some authors state that the IUD can be left in the uterine cavity for an indefinite amount of time. Prolonged use of this device was common, however, it was associated with some complications like uterine bleeding during post-menopausal period and inflammatory pelvic diseases.[ii]

Perforation is exceptional but one of the most serious complications. Indeed, after a perforation, the IUD can be localized in various neighboring organs. Ectopic localization in the pouch of Douglas, omentum, mesentery, colon and bladder have been described[iii]We report a new case of intraperitoneal IUD migration, diagnosed forty six (46) years after its insertion. Laparoscopic surgery was performed to remove the IUD, which was wrapped by omentumat theright lower quadrant of the abdomen.

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DISCUSSION

A 72 year oldG2P2 (2002) presented withcolicky right lower quadrant pain radiating to right thigh for nine (9) months. There were no reported fever, anorexia, nausea and vomiting and dysuria. She reported no irregularities in bowel movement. Consultation was done with a General Practitioner who requested complete blood count (CBC) and urinalysis which revealed unremarkable results. She was advised to apply warm compress and take paracetamol tablet as needed for pain. During the interim, the patient noted recurrence of the pain of the same character but decreased in severity. She was then advised to undergo whole abdominal ultrasound, again with unremarkable results. However, pelvic X-ray revealed a radio-opaque foreign body at the right lower quadrant of the abdomen (Fig 1). As the patient recalled, she had an Intrauterine Device inserted way backin1976 but didn't have any follow up check-up. Also, she had two (2) pregnancies which were both carried to term, all delivered via spontaneous delivery with no feto-maternal complications. The first, was in 1975, a year prior to insertion of Intra Uterine Device (IUD) and then in 1983, seven (7) years after insertion of the IUD.

The patient was then advised to observe with serial x-ray monitoring every 3-6 months to monitor the location of the Intrauterine Device (IUD). Five (5) months prior to admission, patient noted recurrence of abdominal pain of the same character. She underwent Triple Phase Whole Abdominal CT Scan with findings of a spiral shaped metallic density which may represent a migrated Intrauterine Device (IUD) (Fig 2). She was advised surgery to remove the IUD. The surgery involving laparoscopy happened 5 months later. Patient tolerated the procedure and was subsequently discharged. However, histopathology report of omental biopsy is consistent with round cell neoplasm. The patient was advised for read mission last August 2022 for further work up. While admitted, she was referred to Gyne Oncology service wherein a Transvaginal ultrasound was done which revealed multi locular solid mass in the right adnexa measuring 8 x 7 cms. Positron Emission Tomography/Computed Tomography (PET/CT) was also done with findings of complex cystic and solid mass in the pelvic region which measures 7.7 x 8.3 x 8.7 cms. Tumor marker such as Carcinoembryonic antigen (CEA), CA 125, Alpha Feto Protein (AFP) and CA19-9 are all within normal limits. Patient subsequently underwent exploratory laparotomy and resection of ovarian malignancy with Total abdominal hysterectomy bilateral salphingo-ophorectomy and infracolic omentectomy with post operative diagnosis of Ovarian New Growth, right, malignant, stage IIIC. In addition, histopathology revealed high grade serous carcinoma of the ovary and the omental biopsy done last May 2022 was amended and now with findings consistent with metastatic adenocarcinoma with female genital tract as primary. Patient was subsequently discharged and successfully completed chemotherapy. Patient was subsequently discharged and underwent chemotherapy with Paclitaxel Carboplatin and Bevacizumabfrom October 2022 to February 2023. A repeat PET CT Scan was done last March 15, 2023 which revealed no evidence of local tumor recurrence and nodal or distant metastasis and resolution pelvic mass and omental node. Tumor markers were also repeated which revealed CEA at 2.03 ng/ml and CA 125 at 6.5 U/ml both were in normal limits.

DISCUSSION

The intrauterine device (IUD) is one of the most widely used methods of long-term reversible contraception in the world[iv]. Bioactive, copper, copper-silver, or progestin IUDs are the most commonly used because of their better tolerability, but like any foreign body, the IUD can present risks and complications. These include not only abdominal or pelvic pain, abnormal bleeding,

dysmenorrhea, unplanned pregnancy, and spontaneous abortion, especially in the first few months after insertion, but also expulsion, the incidence of which can be as high as 25%, infection, and migration after uterine perforation, which remains rare.[v]

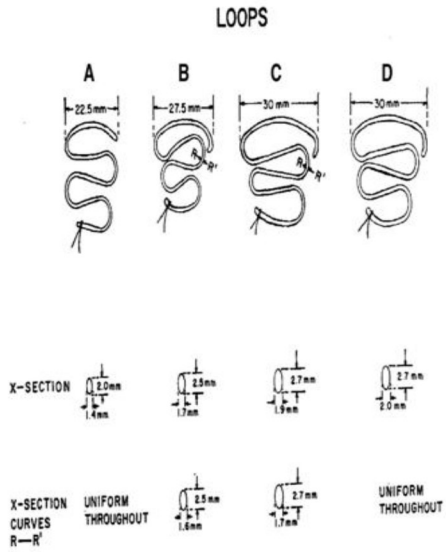

Diagram of the currently available sizes of loops showing differences in over-all dimensions, as well as cross section diameters.
Lippes. The making of the first loop. Am J Obstet Gynecol 2018.

A Lippes Loop was inserted in our patient in the late 1975 to early 1976. The double "S" was designed to reduce expulsions and, simultaneously, to accommodate the IUD to the triangular, or some might say trapezoidal, shape of the uterine cavity. The advent of thermoplastics permitted the development of new IUDs. With linear geometric configuration, devices constructed of the right plastic could be straightened to fit into a hollow tube, ejected from the tube and resume the shape in which it was molded. This characteristic of memory for low-density PE was excellent Measurements of the uterine cavity dictated the dimensions of the loop. Since the internal os of the cervix is 4 mm, the outside diameter (o.d.) of the inserter is also 4 mm. The inside diameter (i.d.) of the inserter barrel is 3.4 mm. For the loop to fit into the barrel of the inserter, its cross-sectional diameter had to be even smaller. In cross-section, loop D is 2.7 by 2.0 mm, while loop A is 2.4 by 2.0 mm. According to Dickinson, the inside diameter of the uterine fundus varies between 25 and 35 mm while the inside diameter of the lower uterine segment is approximately 6 mm. A double S or loop shape had to be confined with this trapezoid[vi]

Migration into the surrounding organs is a rare but serious complication after perforation. [vii]. This migration can take several directions; it usually occurs in the peritoneal cavity and rarely in the surrounding pelvic organs, mainly the bladder, rectosigmoid, omentum, peritoneum, bladder, appendix, small intestine, adnexa, and iliac vein[viii]. Perforation can be primary and occur during insertion, which is usually associated with severe abdominal pain[ix]. While secondary perforation is a late event, supposedly due to progressive pressure and necrosis of the uterine wall[x].

The exact mechanism by which IUD perforations occur is unclear and various etiologic theories exist. It may occur at the time of insertion (may be from sound dilatation), and the device is released beyond the serosa. Finally, embedment may occur at the time of insertion, which predisposes to trans-mural migration and ultimate perforationxi.

An IUD can penetrate and subsequently perforate the uterine wall. The rate of perforation varies from 0.1 to 3.0 per 1000 applications depending on applicant experience, and is between two and ten times higher for postpartum insertions because of the softening of the uterus. In our case, patient reported had IUD insertion late 1975 to early 1976 few months after giving her first birth on October 1975. We can only assume that IUD migrated from year 1976 to 1982 since she already had her 2nd pregnancy in 1983. Also, 1970s was the year when Philippine Government instituted a

national family planning program to reduce the birth rate. The experience of the Physician inserting the IUD could also be a factor in such cases.

Additionally, it is believed that perforation can occur after insertion. A partial perforation during insertion (i.e. part of the IUD becomes embedded in the cervix or the uterine wall) can eventually lead to a complete migration of the device following repeated uterine contractions. Depending on the location, serious complications (e.g. bladder and bowel damage or peritonitis) occur in about 15% of cases of IUD perforations. Therefore, many clinicians prefer to remove the IUD even if the patients are asymptomatic.[xii]

Symptomatology varies depending on the site of migration and the type of IUD. In our case, the patient presented with recurrent abdominal pain for almost 9 months. In the literature, 85% of reported cases of perforation were asymptomatic at the time of diagnosisxiii. However, in some cases, the diagnosis may be made by the appearance of clinical signs such as fever, abdominal pain, diarrhea or urinary tract infection, or even serious complications such as occlusive syndrome or peritonitis due to perforation of a hollow organ.

The clinical diagnosis is not always obvious, and further investigations are necessary to locate the device. Imaging has a great advantage in the topographic diagnosis of a migrated IUD. Abdominopelvic ultrasound is then indicated as the first choice. It shows an empty uterine cavity or a parauterine IUD.If the IUD is not seen by ultrasound,a computed tomography (CT) or magnetic resonance imaging (MRI) scan.[xiv]

The World Health Organization recommends surgical removal of the migrated IUD as soon as possible, even in asymptomatic patients. The recommendation is to use minimally invasive methods if possible, including hysteroscopy, cystoscopy, colonoscopy, or laparoscopy, depending on the location of the IUD. If it is embedded in an organ such as the bladder or bowel, invasive removal is not recommended, but rather an exploratory laparotomy. Similarly, if the device is buried near a blood vessel or is not fully visualized, more invasive methods are recommended by an experienced surgeon xvPatient underwent laparoscopic removal of intrauterine device and omental biopsy last May 2022. It was also noted during the operation multiple peritoneal implants along the omentum and anterior abdominal wall, hence the decision to do a biopsy (Fig 4)

ILLUSTRATIONS

Fig 1. Pelvic Xray showing a radio opaque foreign body

Fig 2.Triphasic Whole Abdominal CT Scan: A spiral-shaped metallic density is seen in the right lower quadrant of the abdomen anterior to the proximal ascending colon.

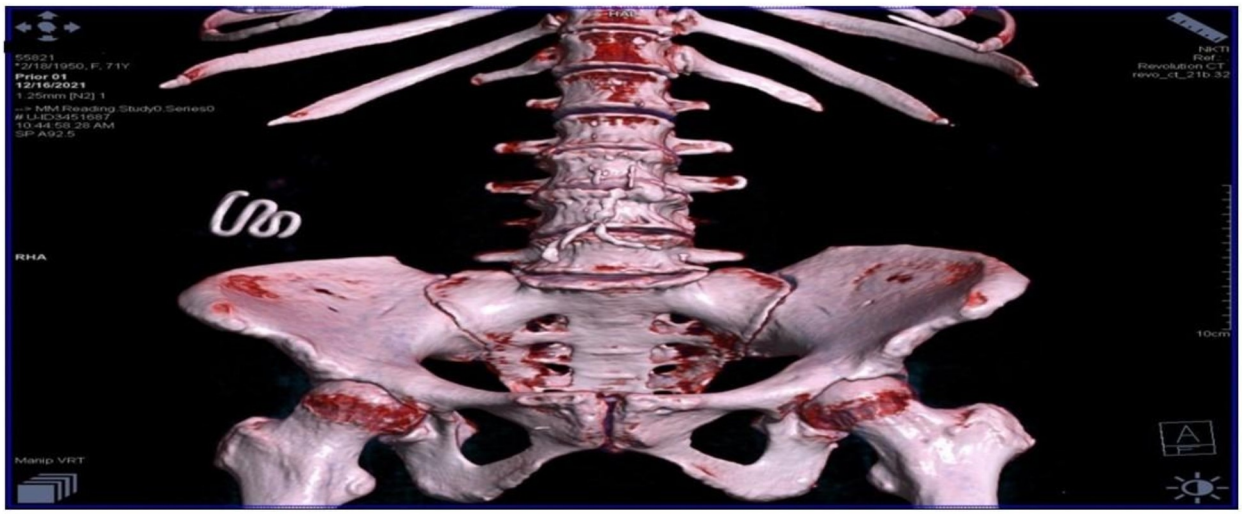

Fig 3. 3D reconstructed view of the spiral-shaped metallic density at Right Lower Quadant of the abdomen

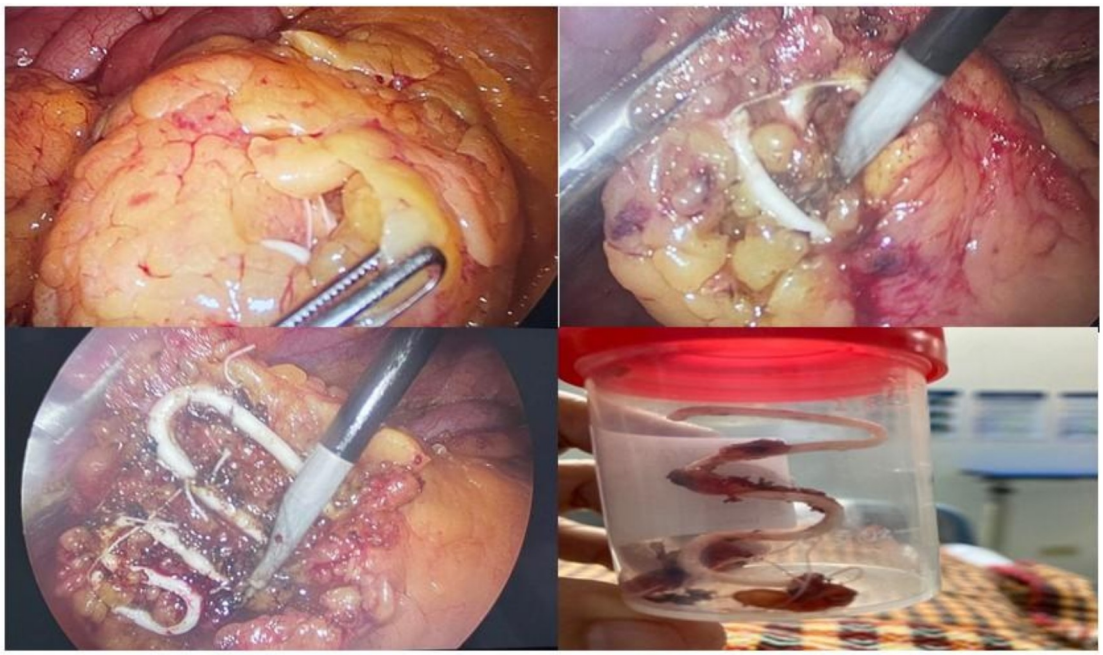

Fig 4. Intraoperative view of laparoscopic removal of Intrauterine Device. Lippes Loop can be viewed after careful mobilization of the omentum. The foreign body was safely removed and delivered via umbilical port.

CONCLUSION

The diagnosis of a migrated IUD should be based on a thorough gynecologic and surgicalevaluation and appropriate radiologic imaging. Surgical removal is a first-line option via laparoscopy or hysteroscopy can be utilized to avoid serious complications. Encountering a migrated intrauterine device (IUD) forty six (46) years after insertion, might actually be the longest documented retained IUD in the Philippines. A laparoscopic removal which lead to detection of another existing disease in a patient highlights the importance of follow up check up and history taking with complimentary role of advanced imaging which is a key component of patient assessment can enable physicians to provide high-quality and appropriate care.

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