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Case Report

Uterine perforation in a 27-year-old woman, a rare complication of copper intra-uterine device: a case report

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ABSTRACT

Uterine perforation by copper intra-uterine device (IUD) though rare presents as a management challenge to the clinician. A 27-year-old woman of African descent presented with missing strings of a copper IUD that was inserted 2 weeks ago. Ultrasonography (USG) showed device outside the uterus. The initially planned laparoscopic removal at a teaching hospital was unsuccessful due to diagnostic challenges. Copper IUD was successfully removed by laparotomy under USG guidance. Copper IUD is a safe and effective method of contraception. Uterine perforation is a rare complication. Early identification, counselling and prompt removal are necessary to avert further complications.

Keywords: Copper intra-uterine device, Contraception, Perforation, Uterus

INTRODUCTION

Awareness and willingness for modern contraceptive uptake is generally on the rise globally.[1] Copper intra-uterine contraceptive device (IUD) is a long-acting reversible contraceptive method with copper distribution on a frame.[2] It is one of the commonest non-hormonals long-acting reversible contraceptives worldwide with over 200 million users.[3] It is an effective and generally safe modern contraceptive method.[1] It has a failure rate of less than 1 per 100 women.[4] Heavy menstrual bleeding and lower abdominal cramps are the most common adverse effects of copper IUDs.[3] These side effects decrease in severity over time but are still the reason for removal.[3] Uterine perforations by copper IUD is a rare complication with cumulative incidence of 0.21% at 1 year and 0.61% at 5 years.[5]

CASE REPORT

This is a case of a 27-year-old black African woman who presented to the family planning unit of the hospital (secondary level of health care) with missing copper IUD strings.

Client presented to the family planning unit with complaints of missing copper IUD strings 2 weeks after its insertion.

She had delivered 18 months ago and had opted for depo provera injections as a means of contraception. She started taking the depot shots 6 months after delivery and had taken four 3-monthly shots. She however reported that the palpitations and headaches associated with the depot provera was unbearable.

She opted for a replacement and was considering Jadelle subdermal implants, but the nurse provider informed her she might have similar side effects since Jadelle also contained progesterone.

Client was offered copper IUD because it was devoid of steroids. She was counselled and was aware it could last for a decade. At the time of the history taking, client did

not know the mode of action of the copper IUD. She was not aware of the complications of the copper IUD including the possibility of perforation. She was however informed to look out for missing strings.

Two weeks after insertion, she could not feel for the strings of the copper IUD any longer and thus reported back to the facility.

After a pelvic examination, ultrasonography of the pelvis was taken which showed the copper IUD outside the uterus and a suspected uterine perforation at the fundus. She was referred to the Komfo Anokye Teaching Hospital for possible laparoscopic removal but their initial pelvic assessment could not locate the device. Moreover, the cost of the laparoscopy was unbearable for the client since she was a petty trader and thus at a lower income level.

A laparotomy under ultrasound (USG) guidance was thus decided as the best way to remove the copper IUD. This was based on the availability of skills and equipment at the facility which was a secondary level facility.

Intraoperatively, the copper IUD was found in the peritoneum. It was embedded in-between the omentum and small bowel, but bowel was not perforated (Figure 1). Adhesiolysis was done to gently dislodge the device from bowel attachment (Figure 2). The omental tissue which was around the device was ligated and excised together with the device. The device was shown to client after removal before discarding. The uterus was retroverted. The uterine fundus had a remote injury of about 0.5 cm to 1.0 cm. She also had bilateral simple ovarian cysts. The uterus, bowel and omentum were inspected for hemostasis. Peritoneum was closed in layers.

Client is parity 2 plus 1 induced abortion. Her first pregnancy was medically aborted by client since it was not intended. Her first delivery was 4 years ago which was spontaneous vaginal delivery (SVD). The second pregnancy was 18 months ago which was also SVD. She had resorted to herbal preparations after her first child as a means of contraception which failed her resulting in her second pregnancy. She therefore opted for modern contraception after her second child which also ended in a complication. She is married and lives in the same apartment with her partner and mother. Both her mother and partner were against her use of contraception, but she went ahead to assert her reproductive health rights. This she did without the knowledge of her partner and mother.

Since she had no regular source of income, she had to inform her partner of the complication that occurred later and the necessity for surgical intervention. This brought about marital disharmony and her partner actually visited the family planning unit in anger and registering his displeasure at providing a service he didn't agree to. The male partner had to undergo counselling by the nurse director in order for him to co-operate with the health workers.

Figure 1: Copper IUD embedded between omentum and small bowel.

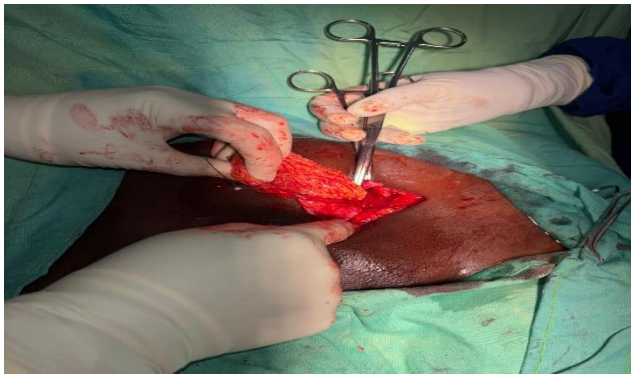

Figure 2: Separation of copper IUD from its attachment.

DISCUSSION

IUDs (mainly copper devices) are the most widely used long-acting reversible contraceptive methods.[4] It's contraceptive ability is believed to be from a sterile inflammatory environment the copper creates in the endometrial cavity.[1] This inflammatory environment incapacitates the sperms.[1] The effectiveness of copper IUD is greater than 99.2%.[3]

The copper IUD is considered to be a safe and highly effective method of contraception.[4] Uterine perforation by copper IUD is rare but a significant complication of the contraceptive method.[6] The perforation may be total (completely peritoneal) or partial (perforates the uterus at varying degree).[7] The uterine perforations are caused either at the time of primary insertion or via a gradual uterine wall damage later on.[8] Most perforations however, occur at the time of insertion.[6] The overall risk of uterine perforation is about 0.21% at 1 year and 0.61% at 5 years.[5] The risk of perforation increases among postpartum insertions.[5] The case under discussion had delivered 18 months ago. Other risk factors for perforation are breastfeeding mothers and heavy menses.[5] Uterine malposition (anteversion or retroversion), congenital anomalies and acquired structural deformities contribute to uterine perforation during copper IUD insertion.[6] Cervical

stenosis, uterine cavity length of >9 cm or <6 cm are other factors that enhance perforation.[6] The case under discussion had retroverted uterus. It is reported that about 42% of uterine perforations occur in retroverted uterus.[8]

A thorough pelvic examination before insertion may help prevent perforation due to retroverted uterus. Insertion by inexperienced providers' increases risk of uterine perforation by the device. Performing pelvic ultrasound before each insertion also decreases the chances of perforation.[9] This luxury however is not available in the healthcare facility where the client visited for insertion. Moreover, performing ultrasound before every device insertion might increase the cost of contraception and thus may become a barrier to uptake.

Most clients with copper IUD perforations are asymptomatic as was the presentation in this case or will at most experience mild lower abdominal pain and slight bleeding per vaginam.[6] This leads to delayed diagnosis of the condition. Missing copper IUD strings and unexpected pregnancies are other leads to suspicion of uterine perforation.[8]The patient under discussion reported because she could not palpate the strings of the device. An ultrasound indicated retroverted uterus with copper IUD outside the uterus. Another diagnostic challenge was at the teaching hospital, where the repeated USG confirmed empty uterus but could not locate the copper IUD in the peritoneum, client was sent back by clinicians, not seeing a clear indication for laparoscopy. A repeat USG at our facility showed the device in the peritoneum. A pelvic X ray could have been an added diagnostic tool but was not considered by both facilities in this case.[6] The copper IUDs have radio-opaque substances that makes them detectable on radiograph.[10]

Computed tomography (CT scan) and magnetic resonance imaging (MRI) are other imaging options for precise location of the missing device.[8] They also help determine organ damage and adhesions before surgery.[10] These imaging techniques (CT scan and MRI) are however beyond the financial reach of most clients in our facility.

Management approach depends on exact location of the device after perforation and availability of skills and techniques needed for removal. There are recommendations for expectant management for asymptomatic cases, but recent studies show that these cases also lead to severe pelvic adhesions eventually.[6]

Options for device removal may include laparotomy, laparoscopy and hysteroscopy.[5] For devices in the peritoneum, laparoscopic removal is ideal, yet this skill and technology might not be easily available in certain health care facilities.[8] As happened in this case, the gynaecologists though have been trained in basic laparoscopic procedures, had no access to laparoscopic tower outside the teaching hospital. This necessitated referral to the teaching hospital (KATH), who eventually returned the case to our facility. Hysteroscopic removal is ideal for partial perforations by the device.[7]

Even though the least invasive surgical approach is recommended for removal of copper IUDs in the peritoneum, we had to opt for laparotomy instead to prevent patient going back and forth between our health facility (secondary level of healthcare) and the teaching hospital. The laparotomy was thus done under ultrasound guidance.[11]

The abdominal incision was based on the location of the device as was shown on the USG. The incision into the peritoneum however, was a lower segment transverse incision. The initially small incision had to be extended to help locate the device. The device was embedded between the omentum and the small intestine. There was neither hemoperitoneum nor pus in the abdomen. The bowel was not perforated. Bowel and bladder perforations are actually rare in these cases.[7]

Another hurdle in management was the co-operation of family members. Since the uptake of the contraceptive was solely the decision of the client knowing that her husband and mother were in opposition to contraceptive use, she had difficulty informing family members after the diagnosis of the perforation. Partner involvement in contraceptive uptake is not compulsory, but it's usually encouraged for marital harmony. Couple counselling enhances uptake of methods and improves continual use.[12] This is more important in our settings which is more patriarchal. Moreover, the patient under discussion did not have enough income to cover her health expenses and thus needed input from her partner. Counselling at the time of the complication should have involved the partner and possibly other family members to avoid marital disharmony.

CONCLUSION

Uterine perforation by copper IUD though a rare complication causes anxiety for the patients. It is also sometimes a diagnostic and therapeutic burden for clinicians. For devices in the peritoneum, laparoscopy and laparotomies are helpful in removal. Contraceptive uptake without the partners' approval needs revisiting in situations where the woman largely depends on her partner. Counselling at the time of complications should be comprehensive even if it means involving both partners.

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