International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

The Shift from X-Rays to Ultrasound in the Detection of IUDS - A Step Forward or Backward? - A Case Report

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Abstract: ***Intrauterine contraceptive device is an effective temporary reversible method of contraception. This is case of 25 year old women with an obstetric score P1L1, previous normal vaginal delivery who underwent copper-T insertion immediate postpartum 3 years ago, came for copper T removal. On clinical examination, copper-T thread not visualised, hence as routine investigation patient was subjected to ultrasound pelvis to confirm her copper T and ultrasound showed linear hyperechoic structure in the lower uterine segment. Hence Copper-t removal was attempted under ultrasound guidance, however it was neither visualised nor removed. Patient had no history of spontaneous expulsion as well. Hence, patient was subjected to X-ray Abdomen like the olden times, and X-ray subjective of no evidence of Copper-T insitu. If patient was reassured without confirming the presence of copper-T, it could have led to further complications such as perforation requiring diagnostic laparoscopy. Hence, we conclude that confirmatory with X-ray abdomen is necessary in patients with intrauterine device.***

Keywords: Intrauterine device, Copper-T, Ultrasound

1. Introduction

Intrauterine contraceptive devices are an effective, temporary method of contraception, which is also reversible which does not interfere with sexual activity.

The device consists of polyethylene which is coated with barium sulphate to make it radiopaque, which helps in detection of IUD in pelvis with the help of ultrasound or radiograph.

They are of two types: Copper and progesterone bearing.

Every device has a nylon thread attached to its lower end and this thread overhangs through the cervical canal into the vagina, where it can be felt by the patient herself and by the doctor.

Copper containing devices operate primarily by
a) Preventing fertilisation
b) Block implantation

As a result, biological foam develops within the uterine cavity that contains strands of fibrin, phagocytic cells, and proteolytic enzymes; however IUD is not an abortifacient

Copper containing devices have copper wire of surface area 200-250mm covered round the longitudinal of a polypropylene frame. Amongst these devices are copper T 200, Copper 7, Multiload copper 250, Copper T 380, Copper T 220 and Nova T.

It is estimated that 50mcg of copper T is eluted daily in uterus.

Paraguard known as Copper T 380A has a duration of 10 years. It has bands of copper on the cross arms of the T in addition to copper wire around the stem, providing a total surface area of 380mm of copper.

Progesterone containing devices –Levonorgesterol (Mirena) is slowly released over a period of 5years. It is called the intrauterine system.

2. Case Report

A 25 year old female patient resides in Nimilicherry, Chennai, married for 4 years with an Obstetric score: P1L1, previous normal delivery, LCB -3 years.

Copper T insitu for 3 years, inserted immediate postpartum.

Patient had complaints of dysmenorrhea during her cycles post Copper T insertion. She came to our service on Day 4 of her cycle for copper T removal. Her Menstrual cycles were regular.

On examination, vitals stable. On per speculum examination, thread could not be visualised. Bimanual examination revealed retroverted uterus, fornices free and non tender and thread could not be felt.

Patient was subjected to Ultrasound pelvis which showed a linear hyperechoic structure within the lower uterine segment.

Under aseptic precautions, Under USG guidance, Copper T removal was attempted. However, copper T could neither be visualised nor removed.

Patient gives no history of expulsion.

Patient was advised to take X ray whole abdomen and there was no evidence of copper T.

Patient was reassured and antibiotic coverage done.

Ultrasound showing linear hyperechoic structure within lower uterine segment

X Ray abdomen showing no evidence of copper T in-situ

3. Discussion

The most accepted reversible methods of contraception available globally are IUD. They are found to be the most cost-effective method existing today with high acceptance rate.

It is advisable to insert IUCD during or soon after menstruation and after abortion or MTP. Immediate postpartum insertion within 10mins of placental expulsion or within 24hours of delivery is practiced and is found effective.

IUD placement is done as an outpatient procedure under sterile technique and with necessary equipments. Minimum uterine depth of 6cm is ensured using a sterile uterine sound. In case of women with history of difficult copper T insertion in the past, or obese women where bimanual palpation is limited or if there is a suspicion of uterine cavity distortion, then insertion is done under image guidance. Patients are advised to review after 6 weeks post insertion of IUD to confirm the visualisation of retrieval strings. The strings should overhang through the external os by 2-3 cm.

Placement of Intrauterine device in the uterine cavity near the fundus is the correct position. During insertion, the stem should extend towards the cervix with the two arms being unfolded, reaching the uterine cornua laterally.

Expulsion rate with copper-T 380A is reported as 2.5/100 women years in the first year of insertion.

Removal rate of IUCDS at the end of one year due to symptoms like abdominal pain, menstrual continuous or heavy menstrual bleeding, excessive vaginal discharge is 15-20%.

Pregnancy rates varies from 2-6/100 women years, likely to be ectopic pregnancies

Complications of IUCD are

Immediate:

- Difficulty in insertion
- Vasovagal attack
- Uterine cramps

Early

- Expulsion (2-5%)
- Perforation (1-2%)
- Spotting, menorrhagia (2-10%)
- Dysmenorrhea (2-10%)
- Vaginal infection
- Actinomycosis

Late

- PID -2-5%
- Pregnancy : 1-3/100 woman years
- Ectopic pregnancy
- Perforation
- Menorrhagia
- Dysmenorrhea

Misplaced IUCD: It is defined as the condition when the tail of IUCD is not seen through the os. The causes are

a) Uterus has enlarged through pregnancy
b) Thread has curled inside the uterus
c) Perforation or IUCD is buried in the myometrium
d) It has been expelled outside

Expulsion, embedment, displacement and perforation are known as malpositioned intrauterine devices. Management is based on the severity of the malposition and symptoms of the patient.

Expulsion is defined as partial or complete passage of intrauterine device through the external cervical os.

Displacement is defined as rotational or inferior position of IUD in the lower uterine segment

Embedment is defined as myometrial penetration without extending through the serosa

Perforation is defined as myometrial penetration with either partial or complete serosal penetration.

Perforation of the uterine wall (<0.5%) can occur at insertion,or the device may migrate through the wall afterwards. Expulsion or perforation may cause the threads to disappear.

Role of imaging in management of patients with IUDs is very crucial. In earlier days, Radiography was the diagnostic modality of choice for IUD positioning, however due to unnecessary radiation exposure, Ultrasound became the first line management.

Currently, Ultrasonography is the first-line investigation localization of IUD in patients with pelvic pain, bleeding per vaginum, or absent retrieval strings due to its low cost,absence of radiation and also provides a detailed of pelvic anatomy. Stem of the ICD well picked in two-dimensional transvaginal ultrasound present as a linear echogenic structure in uterine cavity.

IUD positioning within the endometrial cavity can be documented in most cases with 2D-TVS, however 3D sonography offers improved visualization. The coronal view of endometrial cavity is reconstructed to establish IUD type, location and positioning.

If there is no evidence of Intrauterine Device in transvaginal ultrasound alternatively pelvis radiographs with uterine sound can be used to find IUD positioning, as all IUDs are radiopaque. However, positioning on an abdominal radiograph varies with uterine positions, but the IUD should be found near the midline low in the pelvis and positioned with the arms superior to the stem. Computed tomography (CT) or MRI helps in locating ICD if there is a suspicion of uterine perforation and abscesses. However, due to radiation exposure of CT and cost of MRI limit their utility as a first line investigation for evaluation of IUD position.

In case of perforation of myometrium or abdominal cavity, it should be removed using operative laparoscopy under general anaesthesia.

Adhesions to omentum or a gut due to copper-t is an indication to perform a laparotomy as it cannot be retrieved easily through a laparoscopy.

Linear echogenic structure in uterine cavity may be occasionally mistakenly interpreted as Intrauterine Device. Rare sequelas of spontaneous or induced abortions are retained fetal bone fragments. Ultrasonography shows a either linear or angular echogenic shadowing structures found inside the uterine cavity or myometrium. This result may be misunderstood as an IUD on USG in the absence of a clear history.

4. Conclusion

Hence, in our case, there was presence of a linear hyperechoic structure in lower uterine segment suspected as copper T. However, Copper T could not be visualised or removed under USG guidance. In spite of no history of expulsion, X ray abdomen was taken to rule out the presence of copper T in-situ.

If the patient was sent home without confirming the presence of copper T in-situ, it could have led to further complications such as perforation requiring diagnostic laparoscopy /emergency laparotomy.

Hence, we concluded that confirmatory with X-Ray Abdomen is necessary in patients with Intrauterine device.

References

[1] Ortiz ME, Croxatto HB. Copper-T intrauterine device and levonorgestrel intrauterine system: biological bases of their mechanism of action. Contraception. 2007;75
[2] Johnson BA. Insertion and removal of intrauterine devices. Am Fam Physician. 2005;71:95–102.
[3] Lee A, Eppel W, Sam C, Kratochwil A, Deutinger J, Bernaschek G. Intrauterine Device Localization By Three-dimensional Transvaginal Sonography. Ultrasound Obstet Gynecol. 1997;10:289–292.
[4] Winkelman WD, Frates MC, Fox JH, Ginsburg ES, Srouji S. Secondary infertility and retained fetal bone fragments. Obstet Gynecol. 2013;122:458–461