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A Rare Case of Retrieval of Level IIIc Fractured Copper Intrauterine Device: A

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ABSTRACT

Intrauterine devices (IUDs), both hormonal and non-hormonal, are among the several forms of contraception. Reports of IUD fragments being retained in the intrauterine wall have been noticed and these results highlight the significance of the need to remove IUD carefully by the healthcare professionals. A married 36-year-old woman, P2L2, visited the outpatient department with complaint of pain abdomen. History reveals that a copper IUD was inserted seven years ago postpartum at the time of the patient's second delivery and breakage of CuT threads 2 months back. Initial per speculum examination showed a mild erosion of posterior lip of cervix and inflammatory change on Pap smear. Fragmented CuT embedded in myometrium was diagnosed and confirmed on transvaginal USG and pelvic radiograph which was ultimately extracted with a resectoscope using USG guided hysteroscopy. Practitioners who handle IUD insertion and removal should be aware of this atypical complication. There should be improved communication between healthcare providers and patients regarding the risk of fracture IUD. The significance of meticulous IUD planning, from insertion to removal, is highlighted in this case study**.**

Keywords: *Copper T(CuT), Intra uterine device, removal of fractured IUD, hysteroscope, case report*

1. INTRODUCTION

Intrauterine contraceptive device (IUCD) is one of the most widely used reversible forms of birth control used among married women of reproductive age around the globe.[1] It is a polyethylene T-shaped device that has been treated with barium sulphate to improve visibility on X-rays, which is anchored to the myometrium at the uterine fundus. [2-3] In an effort to provide high-quality family planning spacing services, the government of India adopted Cu T in 2002, offering ten years of effective protection.[3] According to the results of recent studies and literature, IUCDs offer very effective, safe, and a long-term protection against pregnancy. Although there are risks associated with this method of birth control, the overall potential of adverse events is minimal.[3-4] To enable patients to make well-informed personal healthcare choices, it is necessary to have a thorough understanding of the related complication rate with the insertion of these devices.[5] There have been reports of IUD breaking and fragments of IUD being retained after an effort to remove them. These outcomes point to the significance of providers carefully removing IUDs, particularly if copper is present because of its inflammatory qualities. Hysteroscopy or laparoscopy is the initial step in treating a retained and lost IUD before it is considered for surgical removal.[6] The lost IUD was classified into following levels based on hysteroscopic evaluation:

Level I(Cervical):

IUD in place with thread not visible.

IUD Partially embedded in the cervix.

IUD completely embedded in the cervix or perforated.

Level II (Uterine cavity):

IUD in the cavity of uterus with lost threads but free floating.

IUD partially embedded in the endometrium or myometrium.

IUD completely embedded or perforated.

Level III (Uterine Fundus):

IUD embedded in the fundus but fully visible.

Deeply embedded in the fundus with one of the arms visible.

Device not visible or perforated.

The course of management for a retained and broken Cu T belonging to level IIIc is reviewed in this case report.

2. CASE PRESENTATION

A 36-year-old married woman, P2L2, presented to the gynaecology OPD of our institute for evaluation of pain abdomen. Patient had a history of two pregnancies that had culminated in normal vaginal deliveries with live births without any complications and she had had a copper IUD implanted, 7 years ago, postpartum at the time of second delivery. Patient complaints of pain abdomen for the last two months with history of break of CuT threads 2 months back. No other significant symptoms were seen. Menstrual history enquired was normal with 28-30 days cycle, with 3 to 4 days of menstrual flow not associated with any clots or pain and required her to use 2-3 sanitary napkins throughout the day. Past medical history revealed two failed attempts to hysteroscope guided removal of CuT at the local healthcare facility. The patient appeared well, with normal vital signs.

A Pap smear was obtained at the first appointment, along with a pelvic, abdominal and breast examination. Pap smear collected was inflammatory with reactive cellular change. Per abdomen and breast examination revealed no abnormality and were soft and non-tender. On per speculum examination, her vaginal canal appears normal, and the cervix had a mild erosion on the posterior lip. Per vaginal with bimanual examination revealed a forward cervix and uterus seemed to be retroverted, of normal parous size bilaterally fixed and non-tender.

Pelvic radiograph identified a linear metallic fragment in the pelvis adjacent to the uterine sound signifying a retained part of Cu T arm (Figure 1). A transvaginal ultrasound was suggested for additional information, where a fractured CuT with two limbs embedded in myometrium was observed on right side going into fundic part posteriorly. Length of CuT limbs measures 10mm in one and 5mm in the other. Uterus of the patient had dimensions of 7.1 x 4.1 x 5.4 cm with the echotexture normal and no evidence of solid or cystic lesion. At 5 mm, the endometrial thickness seems typical. Bilateral ovaries found to be normal in shape, echo-pattern and vascularity with right ovary 3.1 x 1.7 cm in size and left ovary 4.9 × 1.8 cms in size (Figure 2, 3).

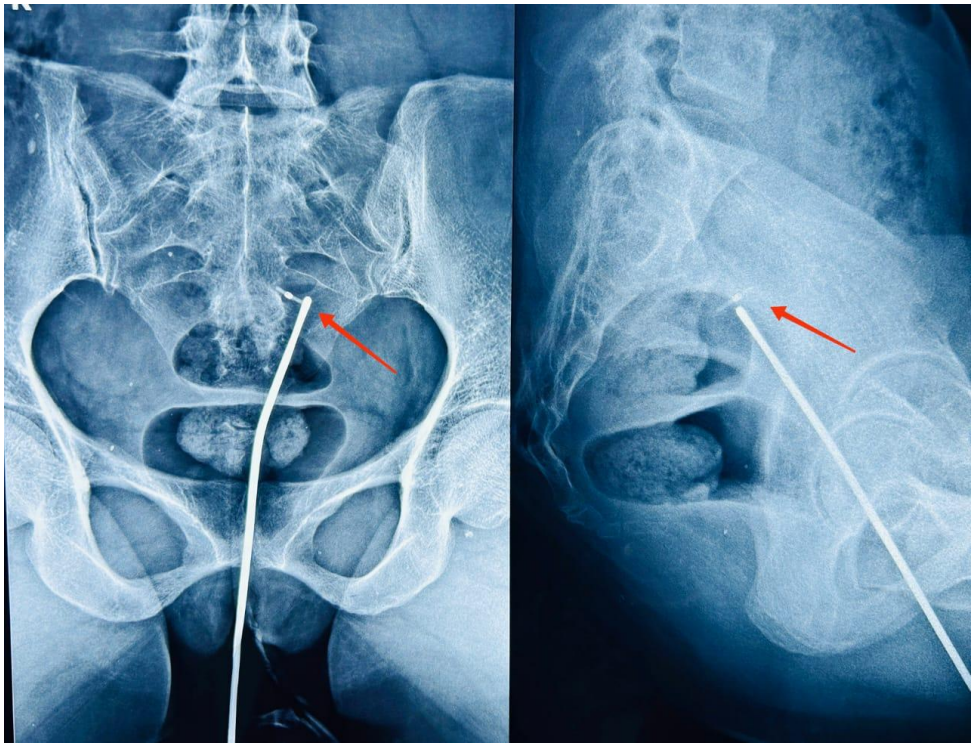

Fig 1: Pelvic X-ray demonstrating a linear density in the left hemipelvis adjacent to the uterine sound.

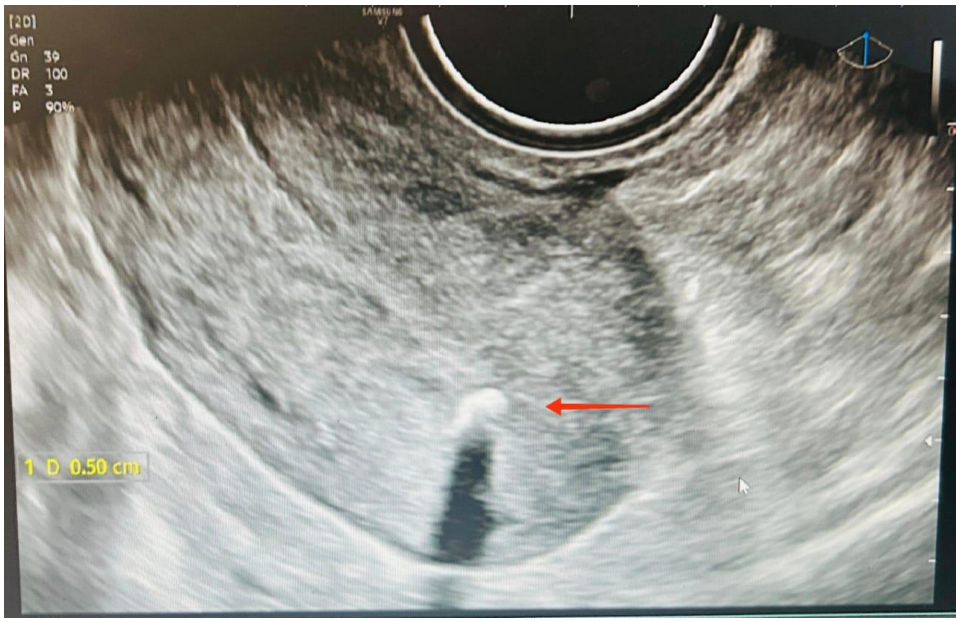

Fig 2: TVUS showing linear echogenicity within the uterine cavity, confirming the presence of copper IUD.

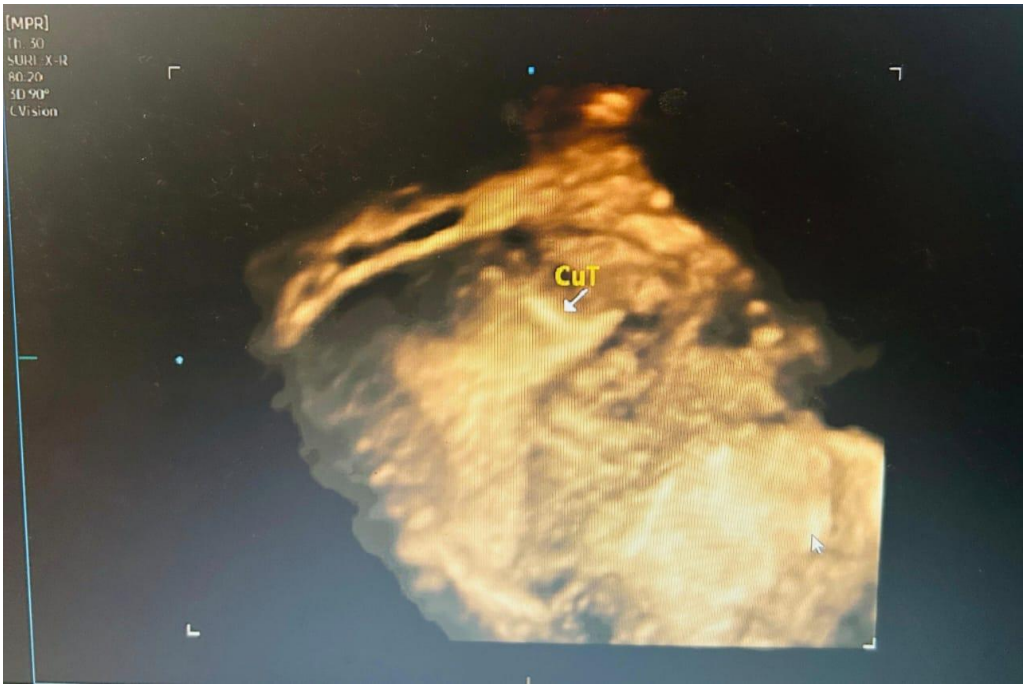

Fig 3: Ultrasound showing fractured Copper IUD.

Management and outcome

A pelvic x-ray and transvaginal ultrasound (TVUS) verified that a piece of the IUD was inside the uterine wall. Under spinal anaesthesia, hysteroscope was introduced to visualize endometrial cavity for the removal of CuT, but failed to spot the fragment of CuT. Hence, the decision was made to perform a laparoscopy, however upon entering the abdomen, CuT is not visible at the surface. Consequently, CuT was located and was extracted using a resectoscope from the Right Fundo-corneal region after the hysteroscope was reintroduced under USG guidance (Figure 4). Following the procedure, fragment of the IUD which was extracted is verified (Figure 5). The patient responded well to the procedure, and had no complications.

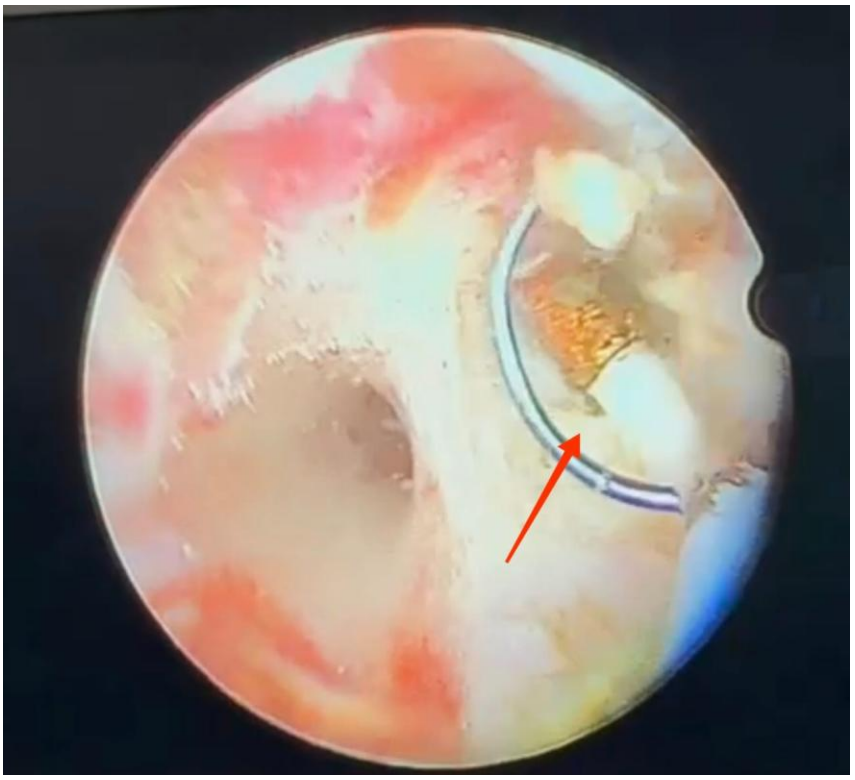

Fig 4: Hysteroscopic image of fractured Copper IUD embedded in the uterine wall.

Fig 4: Fragmented copper IUD removed from patient, noted to have missing vertical arm and threads of the device.

3. DISCUSSION

IUD is one of the extremely safe and highly effective method of contraception. Practitioners will undoubtedly observe its relatively rare complications more often due to its growing rate of use.[7-8] It should be noted that IUD fractures are fairly uncommon[9-10], occurring in 1% to 2% of cases[6]. It has been challenging to evaluate the factors that predispose patients to IUD fracture but a few case reports highlight that the type of IUD, how long it remained in its position, and the person's age

and parity were among some factors that contribute to fractured IUD[10]. According to study by *Wildemeersch D et al (2016)*[11] on IUD displacement and malposition, copper IUDs had a higher rate of fracture events than hormonal IUDs and this finding was supported in a trend analysed by *Latack KR and Nguyen BT (2023)*[12] and *Vitale SG et al .*[13]

In our case report, we presented an instance of a fractured intrauterine device (IUD), a rare but acknowledged side effect of IUD use. The removal of retained pieces is clinically significant since they may result in pain, bleeding, infertility, or infection. In our patient hysteroscopic removal of fractured CuT was found to be a safe and accepted procedure which was similar to a case report published by *Burks CA et al*[14] where the authors described a successful hysteroscopic removal of the fragmented piece of IUD. According to the results of a study by *L Townsend et al*,[15] when the strings are not visible, the first line of approach is USG, which we performed in our case to locate the fractured IUD and to remove it.

This case emphasizes how crucial it is to thoroughly evaluate the location of a CuT after breakage or loss of threads. Professionals who handle IUD insertion and removal should be aware of this uncommon adverse effect and should have better communication about the risk of fracture IUD with the patients. The medical professional should have a well-thought-out, step-by-step care plan that reduces risk of further complications of fractured IUD by keeping eye on the location of it. Similarly, using cautious IUD removal methods might help people better understand this uncommon complication.

4. CONCLUS`ION

It is practical and efficient to remove a fractured or retained IUD hysteroscopically. It is important for providers to aim for timely minimally invasive copper fragment removal since patients who delay the assistance eventually require additional invasive procedures. We emphasize that such issues are uncommon and that IUDs still remain safe and effective method of contraception.

Conflict of Interest

Regarding the publication of this case report, the authors affirm that they have no conflicts of interest.

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Ethical issues

An informed written consent was obtained from the patient to publish the details in this case report.

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