RESEARCH ARTICLE

Analysis and Management of Missing Intrauterine Contraceptive Device Threads in a Tertiary Care Hospital

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Abstract

Background: Intrauterine contraceptive devices (IUCDs) are a common method of contraception adopted for birth spacing in India. Copper T (CuT) 380A is marketed by the government free of cost, which makes it widely available to the patients in need. But a common problem of missing threads leads to an unwanted complication, which needs to be analyzed.

Materials and methods: This is a retrospective analysis of patients with missing CuT threads attending the outpatient department (OPD) of gynecology of Mahatma Gandhi Medical College, Puducherry, over a 3-year period between 2017 and 2019. Data regarding patients complaints, timing and place of insertion, obstetric history, ultrasound report, and method of retrieval were analyzed.

Results: Out of 75 users of IUCD attending OPD of gynecology over the last 3 years, 28 patients came with missing IUCD threads. Out of 28, 2 patients had spontaneous expulsion, 6 opted for continuation after confirming its normal placement within the uterine cavity, whereas 20 patients opted for retrieval. The most common reason for removal was the need for conception (60%). In 46.4% of cases, IUCD was found embedded in the myometrium and 50% required diagnostic hysteroscopy. Use of ultrasound during retrieval helped in around 50% of cases. Difficulty in retrieval was seen in two cases whereas perforation was seen in one case.

Conclusion: Most of the missing IUCD threads were found in patients with history of previous cesarean and though ultrasound in most cases revealed IUCD within the uterine cavity, in few cases it was embedded in the myometrium making retrieval difficult requiring an OT setup.

Keywords: Family planning, Hysteroscopy, Missing intrauterine contraceptive device, Ultrasound.

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Introduction

Intrauterine contraceptive devices (IUCDs) are considered one of the best methods of long-acting reversible contraception and a widely accepted method of family planning over the world. In 1909, intrauterine devices (IUDs) for contraception were first introduced by Richter; later in 1929 they were further developed and deployed by Grafenberg and finally in 1959 flexible plastic IUDs were introduced.[1] About 1.16 billion women of the reproductive age group between 15 years and 49 years use IUCD as a method of family planning, which constitute 13.9% of the world's population.[2]

The IUCD is easy to use, allows privacy, does not require action at the time of intercourse, is highly effective, and does not require partner cooperation or clinical visits. The IUCD failure rates as well as perfect use rates are identical with less than 1%.[3] The WHO gives IUCDs a category 2 in women younger than 20 years, although there is a concern about expulsion and increased risk of sexually transmitted infections (STIs) in nulliparous and younger women.[4]

The IUCD is associated with few complications, which include intermenstrual bleeding, menorrhagia, displacement (missing IUD), pelvic pain, pelvic inflammatory disease, failure resulting in pregnancy with the IUD *in situ*, expulsion, transmigration, increased risk of ectopic pregnancy, coital difficulties, and menstrual abnormalities resulting in high discontinuation rates in some studies.[5,6] Only 2% of married women of reproductive age use IUCDs all over India due to these complications.[3] It is estimated that 0.5–2% is the prevalence of missing IUD, which varies from center to center.[6,7] The objective of the present study was to analyze the prevalence and clinical outcomes of missed IUCD strings in women using IUCDs.

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Materials and Methods

This is a 3-year retrospective study of cases of missing copper T (CuT) threads attending the outpatient department (OPD) of gynecology of Mahatma Gandhi Medical College and Research Institute between January 2017 and December 2019. A detailed demographic profile and menstrual and obstetric history were taken from patients with missing CuT threads. Patients who were referred to our hospital due to complications following IUD inserted at other facilities were also included in the study. Timing of the insertion, type of intrauterine device, diagnostic method used, treatment, and complications following the missing IUD were retrieved from the case records using a data collection sheet for analysis. The data obtained were analyzed using the SPSS software.

Results

Out of 75 users of IUCD visiting the OPD in last 3 years, 28 patients came with missing CuT threads. Ours being a tertiary care hospital,

we get many referral cases. Most of them were not able to feel the thread since the time of insertion as they were inserted during the cesarean section, making them anxious whether the device was still in place or had fallen out. Total 6 patients continued to use it as a method of contraception confirming its proper position by ultrasound whereas 20 patients opted for removal due to various personal reasons. Removal was done as a minor OT procedure. In 2 patients, IUCD had expelled without knowledge of the patient.

The demographic and IUCD insertion details of patients with missing IUCD are highlighted in Table 1. Majority of patients in our study were between the 25 and 35 year age group. About 53.6% were primipara and had the IUD inserted for birth spacing. About 57.1% patients had IUCD inserted at hospital and majority were inserted during the cesarean section (46.4%). In majority of patients (46.4%), the timing since insertion was between 1 year and 5 years.

As shown in Table 2, 78.6% of patients were asymptomatic. Six patients had complaints in the form of pelvic pain and AUB (menorrhagia). Patients with missing IUCD threads were subjected to ultrasound scan of pelvis and CuT was found in position in 46.4% of cases whereas in an equal number of cases IUCD was found embedded in the myometrium. In two patients, IUCD was not seen during the scan leading to the diagnosis of expulsion of IUCD. About 45% cases underwent diagnostic hysteroscopy and in majority removal was done with the help of an endometrial curettage with only 15% being retrieved by hook or artery forceps. In over 50% of cases, the ultrasound machine aided in final retrieval. It was more important for those cases in which IUCD was found embedded in the myometrium.

In one case, diagnostic hysterolaparoscopy was required as uterine perforation was suspected. It was a case of previous two cesarean section with missing IUCD string with CuT embedded in the fundal region. Due to acute retroversion of the uterus, there was difficulty in retrieving CuT. On diagnostic laparoscopy, a small perforation was noted near the scar site few centimeters away from the bladder. The patient was managed conservatively and under observation but CuT could not be removed. In another one case of previous cesarean section, CuT was embedded in the fundal region making retrieval difficult due to acute anteversion. In four cases, only multiload intrauterine device was seen whereas in majority it was CuT 380A whose threads were missing.

As shown in Table 3, out of 20 patients who opted for IUCD removal, 30% were symptomatic with persistent pelvic pain or abnormal uterine bleeding. About 60% wanted conception and requested removal. In 10% of cases, patient insisted on removal when the scan finding revealed the intrauterine device being embedded in the myometrium.

Table 1: Demographic details of patients with missing CuT

Age	*No. of patients*	*Percentage*
(1) <25 years	6	21.4
(2) 25–35 years	15	53.6
(3) >35 years	7	25
Parity		
Primipara	15	53.6
Para 2–3	9	32.1
Para >3	4	14.3
Place of IUCD insertion		
Health centers	12	42.9
Hospital (other)	16	57.1
Timing of insertion		
PPIUCD (VD)	7	25
PPIUCD (LSCS)	13	46.4
Interval IUCD	5	17.9
Postabortal IUCD	3	10.7
Time since insertion		
<1 year	7	25
1–5 years	13	46.4
>5 years	8	28.6

Discussion

In our study, out of 75 users of IUCD visiting our hospital in last 3 years, 37.3% reported missing IUCD. The incidences of missing IUCD in various studies have been between 4.5 and 18.1%. In a referral center, the incidence is expected to be more as in the study by Verma et al. where the incidence was around 22%.[8] This is probably the same reason for higher incidence in this study. About 53.6% of women in our study group were in the age group between 25 and 35 years whereas in the study by Adewale et al. majority were in the age group between 30 and 39 years. In our study, 53.6% cases were seen in primipara. This is in contrast to other studies where the incidence was higher in grand multiparous women (with parity > 6).[9] More than 50% of IUCD insertions in our study were done in hospitals and

Table 2: Sequelae of missing CuT threads

	Number of patients	*Percentage*
Patients with complaints	6	21.4
Asymptomatic	22	78.6
USG findings		
(1) CuT in normal position	13	46.4
(2) CuT embedded in myometrium	13	46.4
(3) Displaced in peritoneal cavity	0	0
(4) Expulsion	2	7.14
Management		
(1) D and C	7	35
(2) Retrieval hook/artery	3	15
(3) Hysteroscopy	9	45
(4) DHL	1	5
Type of IUCD		
(1) CuT 380A	24	85.7
(2) Multiload	4	14.3
Complication		
(1) Retention after being posted for OT retrieval	2	10
(2) Perforation	1	5

Table 3: Reason for removal of intrauterine device

Reason for removal	*Number*	*Percentage*
Symptomatic (pelvic pain/ menorrhagia)	6	30
Wanted conception	12	60
Embedded in myometrium	2	10

most inserted during cesarean section as postpartum intrauterine contraceptive device (PPIUCD). About 46.5% had presented within 1–5 years of insertion in this study. A similar study had a mean interval of 37.67 months (3.13 years), which was observed between insertion of IUCD and diagnosis of missing IUCD strings but 49.3% were inserted as interval IUCD (Verma et al.).[8] In the study by Jimoh et al., most of the missing IUCDs were reported within first 6 months of use.[7]

About 78.6% of users of IUCD in our study were asymptomatic, which is similar to other studies as in the study by Mishra et al. where more than 50% cases of women with postpartum IUCD insertion with missing IUCD threads were found to be asymptomatic.[10] This is in contrast to the study by Jillani et al. where only 32.4% were found to be asymptomatic.[11] Out of the symptomatic cases, AUB and pelvic pain was the most common complaint in our study. Abdominal pain with variable nature and intensity was present in 31.3% patients in the study by Adeleye et al.[12]

In our study, all patient underwent two dimensional transvaginal ultrasound to locate IUCD that is seen as a double bar sign with shadowing. The three dimensional transvaginal sonography (TVS) is however useful to detect IUCD with T arm embedded within the myometrium so that retrieval can be planned better as a OT procedure. In our study, half of the IUCDs were in their normal position whereas half were embedded. There were no displaced IUCDs. This indicates that insertion was done by proper techniques with proper selection in most cases. Braaten et al. identified 10.4% displaced IUDs after retrospectively studying all ultrasound reports for a 5.5-year period.[13] In a study by Megha et al., embedded IUCD was reported in 61% women.[14] Embedment is more common in females with smaller fundal endometrial diameters.[15] It has been quoted that IUCDs have an expulsion rate of 2–10% in 1st year of use.[16] In our study, expulsion was seen only in two cases. Insertion of IUCD in the immediate postpartum period, insertion of the device early in the menstrual cycle, menorrhagia, and uterine anomalies may increase the chances of expulsion. CT is the best modality for the evaluation of complications associated with intra-abdominal IUCDs, such as visceral perforation, abscess formation, and bowel obstruction.[17]

The management of patients with missing IUD include the use of uterine sound, retrieval hook, Spencer well's forceps and sponge-holding forceps with or without cervical dilatation for its removal, minilaparotomy, and laparotomy.[18,19] Using misoprost tablets vaginally may help to reduce pain during the IUD removal in a nonpregnant nondilated cervical os or in patients with history of cesarean section done in early labor. In our study, in 45% cases retrieval was hysteroscopy-guided, and endometrial curette (35%) was the most common instrument used followed by retrieval hook (15%). In a study by Megha et al., hysteroscopic removal was done in 61%, removal by artery forceps was done in 20%, laparoscopic removal and laparotomy in 6 and 2%, respectively.[14] In the study by Lgaos et al., retrieval hook was used in 60% of cases.[19] In the study by Jillani et al., 40.9% transperitoneal migration was reported, which indicates improper training of medical personnel involved in insertion of IUCD.[11,20] About 60% of cases in our study requested retrieval as they wanted to conceive. This is in accordance with various Indian studies. There were no incidences of pregnancy with IUCD or misplaced IUCD (migration into peritoneal cavity) in our study.

Conclusion

The IUCD is most commonly used reversible long-acting contraceptive with few side effects. However, cases of missing IUCD strings are increasing day by day, which is mostly attributed to the insertion of the device during cesarean section. Hence, the patients have to be educated about the benefits, side effects, and complications of this contraceptive method. The timing of insertion can be modified to interval IUCD insertion to prevent the complication of missing IUCD thread as concluded by this study. Retrieval of the intrauterine device as an office procedure or OT procedure requires expertise as well as experience especially in cases of previous cesarean section.

References

1. Rowlands S, Oloto E, Horwell DH. Intrauterine devices and risk of uterine perforation: Current perspectives. Open Access J Contracept 2016;7:19–32. DOI: 10.2147/OAJC.S85546.
2. United Nations Department of Economic and Social Affairs. World Contraceptive Patterns 2013. New York: United Nations Department of Economic and Social Affairs; 2015. http://www.un.org/en/development/desa/population/publications/family/contraceptive-wallchart-2013.shtml.
3. IUCD reference manual for medical officers and nursing personnel, September 2013, Family Planning Division, Ministry of Health and Family Welfare, Government of India. https://nrhm.gujarat.gov.in/images/pdf/IUCD_Referenc e_Manual_Nursing_Personnel.pdf.
4. Olayi R, Dutta DK, Recent Advances in Adolescent Health; Contraception for Adolescents 11;89.
5. Olatinwo AW, Anate M, Balogun OR, et al. Intrauterine contraceptive device (IUCD): Socio-demographic characteristics of acceptors, acceptability and effectiveness in a teaching hospital in Nigeria. Niger J Med 2001;10(1):14–17.
6. Center for Disease Control. Intrauterine Contraceptive Device in Family Planning Method and Practices in Africa. 3rd ed., Atlanta Georgia: CDC;; 1983.
7. Jimoh AA. Complications of intrauterine contraceptive device (IUD) use at the university of Ilorin teaching hospital, Ilorin. Niger J Med 2004;13(3):244–249.
8. Verma U, Gupta M, Saini V. Missing IUCD strings: an analysis. Int J Reprod Contracept Obstet Gynecol 2018;7:4061–4067.
9. Adewale FB, Ashimi A. Missing intrauterine contraceptive device string: diagnosis and management at federal medical center Bida, Northcentral, Nigeria. Trop J Obstet Gynaecol 2018;35(3):298–303. DOI: 10.4103/TJOG.TJOG_56_17.
10. Mishra S. Tail of the tails. the missing post-partum IUCD strings. J Obstet Gynaecol India 2017;67(3):202–207. DOI: 10.1007/s13224-016-0940-9.
11. Jillani K, Khero RB, Maqsood S. Diagnosis and management of misplaced intrauterine contraceptive device (IUCD). Pak J Surg 2010;26:151–154.
12. Adeleye J. Knowledge, attitudes and practice of family planning amongst women in Ibadan Nigeria. Trop Obstet Gynaecol 1985;5:19–26.
13. Braaten K, Goldberg AB. Malpositioned IUDs: when you should intervene (and when you should not). OBG Management 2012;24(8):39–46.
14. Gupta M, Jain G. Misplaced IUCD: challenges and management. People's J Sci Res 2016;9(2):14–17.
15. Shipp TD, Bromley B, Benacerraf BR. The width of the uterine cavity is narrower in patients with an embedded intrauterine device (IUD) compared to a normally positioned IUD. J Ultrasound Med 2010;29(10):14536. DOI: 10.7863/jum.2010.29.10.1453.
16. American College of Obstetricians and Gynecologists. Long acting reversible contraception: implants and intrauterine devices. Practice bulletin no. 121. Obstet Gynecol 2011;118(1):184–196. DOI: 10.1097/AOG.0b013e318227f05e.
17. Boortz HE, Margolis DJA, Ragavendra N, et al. Migration of intrauterine devices: radiologic findings and implications for patient care. Radio Graphics 2012;32(2):335–352. DOI: 10.1148/rg.322115068.

18. Tunçay Y, Tunçay E, Güzin K, et al. Transuterine migration as a complication of intrauterine contraceptive devices: Six case reports. Eur J Contracept Reprod Health Care 2004;9(3):194–200. DOI: 10.1080/13625180400007165.
19. Ikechebelu JI, Mbamara SU. Laparoscopic retrieval of perforated intrauterine device. Niger J Clin Pract 2008;11(4):394–395.
20. Elahi N, Koukab H. Diagnosis and management of lost intrauterine contraceptive device. J Pak Med Assoc 2002;52(1):18–20.