

Assessing Efficacy of Copper T (Cu T) 380 A as a Contraceptive Method and the Indications of Discontinuation of Cu T 380 A: Retrospective StudySuchandra¹, Renu Jha², Kumudini Jha³¹Senior Resident, Department of Obstetrics and Gynecology, Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India²Associate Professor, Department of Obstetrics and Gynecology, Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India³Professor and HOD, Department of Obstetrics and Gynecology, Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India

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Conflict of interest: Nil

Abstract**Aim:** The aim of the present study was to determine the efficacy of copper T (Cu T) 380 A as a contraceptive method and to determine the indications of discontinuation of Cu T 380 A.**Methods:** The retrospective analysis on copper T removals done at Department of obstetrics and Gynecology for the period of 12 months. A total number of 100 cases were observed and included in this study.**Results:** Among 100 cases, Intrauterine insertions were done in 95 (95%) cases, Interval insertions were done in 5 (5%) cases. Majority of these cases belonged to the age group of 20 – 30 years (85 cases (85%) and 15 (15%) cases belong to >30 years of age group. 55 (55%) cases belong to para 1, 40 (40%) cases belong to para 2, 5 (5%) cases belong to para 3. Most of the cases reported after 2-5 years of usage for removal 72 (72%), 20 (20%) cases reported after 1-2 years, 8 (8%) cases reported after 5 years. Major indication for removal was desire for pregnancy in 80 cases (80%). In 17 (17%) cases CuT was removed for sterilization, 1 (1%) case for failure of contraception, 1 (1%) case for abnormal uterine bleeding and dysmenorrhea, 1 (1%) case for uterine perforation. The difficulties faced during removal were non visible strings and missing CuT. Among the removals, as majority of them were inserted during intrauterine period, they were likely to be high up in the uterine fundus with coiled strings and may present with non-visible strings.**Conclusion:** Cu T 380 A is a safe, long-lasting, convenient contraceptive method with very few side effects. The technique of insertion and ease of removal at convenient time makes it an effective and useful contraceptive method. Intrauterine insertion of Cu T can be done easily after counselling the patients.**Keywords:** Copper T, Intrauterine insertion, Interval insertion, Contraception failure, Missing IUCD.

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Introduction

Intrauterine contraceptive devices are reversible contraceptives. Their contraception is remarkable yet its failure rate may lead to unwanted pregnancy. [1] Hormone (Levonorgestrel) loaded IUD shows par less failure rate than copper-T alone. The continuation of pregnancy is possible by safe removal of intrauterine devices (IUDs) by office hysteroscopy, yet challenges of preterm labor and inflammation of placenta can be troublesome. In resource poor settings, termination of pregnancy by manual vacuum aspiration is frequently practiced despite office hysteroscopy under ultrasound guidance being a better alternative. [2,3]

The placement of contraceptive devices in the uterus for the purpose of preventing pregnancy was first described in the scientific literature in the early

1900s. The original intrauterine devices (IUDs) were composed of contraceptive rings made out of a variety of materials, ranging from steel to silkworm gut. [4-9] However, in the pre-World War II era, birth control was not only unpopular, it was considered criminal in many countries and led to the arrest of some of the originators of the IUD, including Dr Grafenberg, Germany, and Dr Ota, Japan. [8,10] The primary mechanism of action of the copper IUD is the prevention of fertilization through a cytotoxic inflammatory reaction that is spermicidal. [11] In copper IUD users, the copper concentration in cervical mucus is substantial and leads to an inhibition of sperm motility. [12]

Because copper ions also result in significant endometrial changes, sperm migration, quality, and

viability at the level of the endometrium is hindered. This effect is believed to be the primary mechanism by which the copper IUD provides contraception.¹³ Several investigators have attempted to recover spermatozoa from the fallopian tubes of women using an IUD and from control subjects not using an IUD. Spermatozoa recovery techniques varied between studies and sometimes were not reported in adequate detail to allow for duplication.

However, often mothers are very apprehensive about getting copper T inserted in the postpartum period and insist to come back after 6 weeks (interval) for the same. Therefore, we should have enough evidence to support the most appropriate timing of IUCD insertion especially in Indian scenario where safety and efficacy of the contraceptive method is always a concern due to resource limitation and less awareness about contraceptive needs of a woman among the population. A cost-effective, long acting, reversible contraceptive method with least side effects is the need of the country.

The aim of the present study was to determine the efficacy of copper T (Cu T) 380 A as a contraceptive method and to determine the indications of discontinuation of Cu T 380 A.

Materials and Methods

The retrospective analysis on copper T removals done at department of obstetrics and Gynecology, Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India for the

period of 12 months. A total number of 100 cases were observed and included in this study.

IUCD Insertion and Follow-up

Every patient eligible for IUCD insertion after delivery was counselled to choose between postpartum (immediate or delayed) or interval insertion. Kelley's forceps was used for immediate postpartum insertion of CuT380A after vaginal delivery and 'no touch' technique was used for interval insertion. All doctors who performed IUCD insertion were adequately trained for the procedure and a standardized protocol was followed. The cohort of patients underwent follow up at 6 weeks, 12 weeks and then at 6 months. At every follow up patients were asked about any complaint and whether they were able to feel the thread of IUCD or not. If they were not able to feel the thread, in situ position of copper T was confirmed by clinical examination/X-ray examination/ultrasound wherever needed. If after above examination copper T was found in situ, the case was categorized under inability to feel thread. If no copper T was found inside, it was considered as a case of spontaneous expulsion. The reasons for IUCD removal were also noted. These included irregular bleeding per vaginum (BPV), chronic pelvic pain, pelvic infection or patient's willingness to use either permanent method or another method of contraception. Failure was confirmed with confirmation of pregnancy while copper T was still in situ.

Results

Table 1: Time of insertion and age distribution

Time of insertion	N%
Intra caesarian insertion	95 (95)
Interval insertion	5 (5)
Age in years	
<20	0
>21-30	85 (85)
>30	15 (15)

Among 100 cases, Intra caesarian insertions were done in 95 (95%) cases, Interval insertions were done in 5 (5%) cases. Majority of these cases belonged to the age group of 20 – 30 years (85 cases (85%) and 15 (15%) cases belong to >30 years of age group.

Table 2: Parity distribution and duration of IUCD

Parity distribution	N%
P1	55 (55)
P2	40 (40)
P3	5 (5)
Duration of IUCD	
1-2 years	20 (20)
2-5 years	72 (72)
>5 years	8 (8)

55 (55%) cases belong to para 1, 40 (40%) cases belong to para 2, 5 (5%) cases belong to para 3. Most of the cases reported after 2-5 years of usage for removal 72 (72%), 20 (20%) cases reported after 1-2 years, 8 (8%) cases reported after 5 years.

Table 3: Indications for removal

Indications for removal	N%
Desire for pregnancy	80 (80)
Sterilization	17 (17)
Failure of contraception	1 (1)
Uterine bleeding	1 (1)
Uterine perforation	1 (1)

Major indication for removal was desire for pregnancy in 80 cases (80%). In 17 (17%) cases CuT was removed for sterilization, 1 (1%) case for failure of contraception, 1 (1%) case for abnormal uterine bleeding and dysmenorrhea, 1 (1%) case for uterine perforation. The difficulties faced during

removal were non visible strings and missing CuT. Among the removals, as majority of them were inserted during intracesarian period, they were likely to be high up in the uterine fundus with coiled strings and may present with non-visible strings.

Table 4: Duration of IUCD insitu

OPD & OT removal	N%
OPD removal N=55	
Using artery forceps	42 (42)
USG guidance	13 (13)
OT removal N=45	
After cervical ripening	43 (43)
Under hysteroscopic guidance	1 (1)
Laparoscopic removal	1 (1)

Out of 100 cases of total Cu T removals, 55 (55%) were removed on outpatient basis. Among them, in 42 (42%) cases, Cu T removal was done by artery forceps after cervical dilatation during menses, and in 13 (13%) cases, Cu T removal was done under USG guidance. Among the 100 cases, 43 (43%) were removed under anesthesia after cervical ripening, 1 (1%) case required hysteroscopy guided removal, 1(1%) case required laparoscopic removal due to misplaced IUCD into the abdomen which was embedded in the anterior abdominal wall.

Discussion

India is the second largest populous country in the world with a total population of 121 crores (Census 2011). [12] Although there are many reasons behind the rapidly growing population, high unmet need for contraception is an important barrier to check population growth in the country. According to National Family Health Survey-4 (NFHS-4), the current total unmet need for contraception is 12.9% and unmet need for spacing is 5.7%. [13] Population control is not just a target to achieve but also it is a path to better health care in India by decreasing the burden on health-care infrastructure. Needless to say, good contraceptive care of reproductive age women will help in achieving the objective of stable population in future. Good contraceptive care includes all aspects of contraception including method of contraception to be used and appropriate timing. In contrast to routine care, contraceptive care of a mother is easily overlooked after delivery resulting in unintended pregnancy, thereby increasing the maternal morbidity and mortality. Besides, if a

woman does not use any contraception after birth of the baby, she will always be worried about getting pregnant and that may affect rearing up of her child. So clearly, there is need for contraception in the postpartum period. Good contraceptive method is also needed for spacing between childbirths and to check fertility for a woman throughout her reproductive period. Intrauterine copper devices provide a useful method of contraception after birth of a baby as they do not affect breast feeding and once inserted, they remain effective for a long time. In India, the device Copper T 380A (CuT380A) is being supplied free of cost by the government and it is effective for 10 long years. However insertion of copper T in postpartum period also has certain disadvantages like higher expulsion rates and missing threads. [14]

Among 100 cases, Intracesarian insertions were done in 95 (95%) cases, Interval insertions were done in 5 (5%) cases. Majority of these cases belonged to the age group of 20 – 30 years (85 cases (85%) and 15 (15%) cases belong to >30 years of age group which was similar to the study of Mishra et al [15] (97.15%). Cu T 380 A allowed many women around the world to avoid unwanted pregnancies and provided effective spacing of pregnancies. 55 (55%) cases belong to para 1, 40 (40%) cases belong to para 2, 5 (5%) cases belong to para 3. Most of the cases reported after 2-5 years of usage for removal 72 (72%), 20 (20%) cases reported after 1-2 years, 8 (8%) cases reported after 5 years. This was similar to the study in Calabar

university [16] where desire for pregnancy was 70.26%, and in study in Jos [17] was 31.9%.

Major indication for removal was desire for pregnancy in 80 cases (80%). In 17 (17%) cases CuT was removed for sterilization, 1 (1%) case for failure of contraception, 1 (1%) case for abnormal uterine bleeding and dysmenorrhea, 1 (1%) case for uterine perforation. The difficulties faced during removal were non visible strings and missing CuT. Among the removals, as majority of them were inserted during intracesarian period, they were likely to be high up in the uterine fundus with coiled strings and may present with non-visible strings. Once the IUCD is confirmed to be within the cavity, outpatient removal with use of additional modalities (e.g., Ultrasound guidance, Shirodkar's hook, Endometrial biopsy curette, Artery forceps) can be applied. Curling and retraction of the thread into cervical canal and uterine cavity are major causes of missing strings. Simple pulling of the IUCD with artery forceps and endometrial biopsy curette from uterine cavity was done in 40.6% cases and in 16.4% cases removal was done under sedation after cervical ripening. It was similar to study of Mishra et al. [15]

Out of 100 cases of total Cu T removals, 55 (55%) were removed on outpatient basis. Among them, in 42 (42%) cases, Cu T removal was done by artery forceps after cervical dilatation during menses, and in 13 (13%) cases, Cu T removal was done under USG guidance. Among the 100 cases, 43 (43%) were removed under anesthesia after cervical ripening, 1 (1%) case required hysteroscopy guided removal, 1(1%) case required laparoscopic removal due to misplaced IUCD into the abdomen which was embedded in the anterior abdominal wall. Uterine perforation following IUCD insertion is rare and 0.5 to 3 per 1000 insertion are seen according to Mon Lai Cheung et al. 9 Two types of uterine perforation of copper T exists, namely primary and secondary perforations. Both are prone to serious device associated complications. Primary perforation may occur during insertion due to faulty technique, inappropriate timing of insertion, soft uterine wall, wrong measurements of uterocervical length. It typically presents with acute pain abdomen. Secondary perforation is a silent, delayed event occurring due to slow migration of Cu T through uterus due to spontaneous uterine contractions, concurrent bowel peristalsis, bladder contractions. Approximately 80% of IUCD are found in peritoneal cavity after perforation. Migration into surrounding organs is rare but serious complications occur. WHO recommends removing the migrated IUCD as soon as possible. It should be removed even in asymptomatic patients once it has migrated. In case study by Cetinakaya et al [18] they found that 23 (41.8%) were located outside the uterine cavity, 3(5.5%) were embedded

in myometrium. In current study 1 (1%) case presented with migrated IUCD, it is found to be embedded in the anterior abdominal wall with minimal adhesions. Laparoscopic retrieval of the misplaced Cu T was done.

Conclusion

Cu T 380 A is a safe, long-lasting, convenient contraceptive method with very few side effects. The technique of insertion and ease of removal at convenient time makes it an effective and useful contraceptive method. Intracesarean insertion of Cu T can be done easily after counselling the patients. This information may be useful to counsel women who are considering an IUCD and current users who are requesting for removal due to side effects.

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