

## Study of Missing Strings of Intrauterine Contraceptive Devices

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### Abstract

*Introduction:* Intrauterine Contraceptive device is an effective, safe and convenient method of contraception used worldwide. It may have complications like missing threads, abnormal uterine bleeding, perforation and migration to neighbouring structures. The device has nylon thread attached to its lower end and this thread protrudes through cervical canal into vagina. Missing strings of IUCD is a common complaint, among IUCD Users with, possibilities of spontaneous expulsion or it could be intrauterine, Partially embedded in the myometrium or trans migration to extra uterine structure. With the invent of hysterolaparoscopy missing strings of IUCD can we managed easily.

*Objectives:* To analyze the factors associated with the missing strings of IUCDs'. To review the management of missing strings of IUCD

*Materials and Methods:* This is a Prospective observational study conducted in the department of OBG at Oxford Medical College, Hospital and Research Centre, Yadavanahalli, Bangalore, from Jan 2017-2018.

*Results:* In our study there were 46 cases of missing strings of IUCD found over a period of 1 year, with a common type being Cu T 380A and multi load. Out of 46 cases 78% of cases IUCD was Inserted by lady health worker/PHC doctor. Majority of the patients had a time interval of 2-5 years between the insertion and removal of IUCD. 80% of the cases (37 patients) IUCD was intrauterine, 10% of cases (5 patients) it was

partially embedded in the myometrium and only 6.5% cases (3 patients) IUCD was situated extra uterine sites. Missing IUCD was removed easily with simple artery forceps/IUCD hook in 28 cases (60%), 14 cases required hysteroscopy and 3 cases laparoscopy was needed for the retrieval.

*Conclusion:* Hence, IUCDs is a safe and cost effective method of contraception in the developing countries. Proper education and counseling of the beneficiaries regarding the regular follow up is required for early removal of misplaced IUCD. Institutional training of the family planning personnel is necessary for proper insertion to avoid complications. Hysteroscopy guided retrieval of the misplaced IUCD is the Gold Standard.

**Keywords:** IUCD; Missing strings; Uterine perforation transmigration; Hysteroscopy.

### Introduction

IUCD is an effective, safe and convenient method of contraception used world wide. They are also suitable for women who are breast feeding and for women who want reversible contraception for few years. Hormone releasing IUCDs have become popular in patients with AUB, with anemia. IUCDs may cause complications like abnormal uterine bleeding, missing strings, uterine perforation, transmigration etc.

IUCD was first introduced in Germany by Ernst Grafurberg in 1920 [1]. Over a period of years there are many innovation like copper releasing, silver containing, hormone releasing and Cu-fix IUD (flexigard) etc.

Commonly used copper releasing IUCD is Cu-T 380A, as it is supplied free of cost by government of India. IUCDs can be inserted at any time like post abortal, post placental, post partum, and post menstrual period. PPIUCD insertion is gaining more acceptances in developing countries with better counseling. Despite with improved availability of IUCD, the discontinuation rates are high because of increased menstrual or intermenstrual bleeding, dysmenorrhea etc. The removal rate is around 2-10/100 women [2].

The missing strings of IUCD are a common clinical problem associated with IUCD users. The possibilities with missing strings include

- Thread may coiled up in the cervical canal
- Torn off tail /expelled
- IUCD embedded in myometrium
- Transmigration into peritoneal cavity, bladder or rectum

The incidence of misplaced IUCD is around 5% of cases [3]. The IUCD string is used to monitor and to remove the device. In developing countries IUCD is mostly inserted by paramedical staff or lady health worker. Inadequate pelvic examination before insertion and inexperience of the personal may predispose for misplaced IUCD or uterine perforation. The person may be asymptomatic or symptomatic with lower abdominal pain, bowel/bladder involvement.

The procedures involved in retrieval of missing IUCD include simple extraction with artery forceps or metal hook or dilatation and Curettage. If there is perforation endoscopic procedures like hysteroscopy or laparoscopic retrieval may be the option.

The retrieval of the migrated IUCD is advisable even if it is a asymptomatic, so that the further complications like adhesion, injury to bowel or bladder can be avoided.

#### Objectives

- To analyze the factors associated with the missing strings of IUCDs'
- To review the management of missing strings of IUCD

## Materials and Methods

This study is a prospective observational study conducted in a tertiary care centre in the department of OBG, The Oxford Medical College (Bangalore, RGHS University), Hospital and Research Centre from January 2017-January 2018 over a period of 1 year. Patients presented with or referred with h/o missed string or misplaced IUCD were enrolled. A proforma was designed containing information about patients age, parity, time of insertion, duration of IUCD, type, place and person who inserted the device like obstetricians or paramedical staff etc. The information about the method of diagnosis like USG, X-RAY (abdomen and pelvis), hysteroscopy, the mode of retrieval in the form of simple D and C, use of artery forceps, IUCD hook, hysteroscopy or laparoscopy under anesthesia have been documented. The exact location of the missing IUCD, outcome of the patient and any morbidity associated with the procedure has been analyzed.

## Results

In our study there were 46 cases of misplaced IUCD, over a period of 1 year from January 2017 to January 2018. The common types of IUD's were Cu T, 380 A and Multiload. Out of 46 cases 52.7% (24 cases) were inserted by a lady health worker. While 12 cases it was inserted by a doctor practicing at a private hospital. In 10 patients IUCD's were inserted at tertiary care centers (Table 1).

**Table 1:** Place / Person who Inserted the IUCD

Place	No. of Patients	Percentage
PHC/CHC	24	52.7%
Private Hospital	12	26%
Tertiary Care Center	10	21%

Majority of the patients belonged to the age group between 20-30 years (i.e. 80%) with the mean age of the patients in the study group is 28 years (Table 2).

**Table 2:** Age distribution

Age (in years)	Number of patients	Percentage
20-25	13	28%
26-30	24	52%
31-35	6	13%
36-40	0	0%
More than 40	3	6%
	46	100%

Regarding their parity most (40 patients) were para<sub>2</sub>, contributing 86.9%, 6 cases were para<sub>3</sub> and above majority of the patients had time interval of 2-5 years between insertion and the removal of the IUCD (Table 3,4,5).

**Table 3:** Parity

Parity	Number o Patients	Percentage
1-2	40	86.9%
3-4	06	13.1%

**Table 4:** Time of insertion of IUCD

Time of Insertion	Number of Patients	Percentage
Post Placental - VD/ LS CS	13	28.2%
After Vaginal Delivery	06	13.0%
Lactation Period	16	34.7%
Interval Time	11	23.9%

**Table 5:** Time Interval B/W Insertion and Removal of IUCD

Time	No of Patients	Percentage
<1 Year	10	21.7%
1-2 Years	9	19.5%
2-5 Years	24	52%
>5 Years	03	6.5%

There was one patient who had neglected IUCD in site at the age of 47 years. After confirmation of diagnosis of the missing IUCDs' out of 46 patients it was found that one had spontaneously expelled, in 30 patients IUCD was insitu, in five patients IUCD was partially embedded to myometrium. In 7 cases there were intracervical and in 3 cases IUCD was transmigrated into extrapelvic organ region (Table 6).

**Table 6:** Location of Missing IUCD

Location	No of Patients	Percentage
Intrauterine	30	65%
Partially Embedded in myometrium	05	10.8%
Intra Cervical	07	15%
Extra utrine	03	6.5%
Spontaneous Expulsion	01	2.1%

Among 46 cases IUCD was removed easily with artery forceps/hook in 28 patients. Those cases with embedded in myometrium hysteroscopy guided retrieval was done in 14 cases (30% cases). While 3 cases needed laparoscopy intervention. Where in 1 case cu 380 A was embedded in the pouch of Douglas with intestinal adhesions. None of them required laparotomy in our study (Table 7).

**Table 7:** Mode of Retrieval of IUCD

Mode of Retrieval	Number of Patients	Percentage
Simple Artery Forceps +/- D & C	21	45%
IUCD Hook	07	15%
Hysteroscopy	14	30%
Laparoscopy	03	6.5%

## Discussion

IUCD is more frequently used reversible contraception in developing countries which was preferred due to long duration of birth control and ease of use. However, there are many complications associated with IUCDS like missing thread, uterine perforation, transmigration to neighboring structures etc.

Missing strings of an IUCD is a common complaint. It should be evaluated to locate the site of IUCD with either ultrasound or with/without X-ray of the abdomen and pelvis. In our study all patients underwent clinical examination, ultra sound study, few needed X-ray of the abdomen and pelvis. We had 46 cases of patients with missing strings of IUCD. 37 (80%) were of age group of 20-30 years which correlates with the study done by Vasantha Lakshmi et al with 72% [4]. 3 patients aged more than 40 years presented with non gynecological complaints had neglected IUCD in SITU which were removed.

Majority of the patients with misplaced IUCD may be asymptomatic for many years. In our study 76% were Asymptomatic and 34% had presented with pain abdomen, AUB and bowel symptoms. K Jillani [5] and N Elani [6] *et al.* in their studies reported presentation with lost strings in 40.9% and 32.4% of patients respectively. In our series 52.7% of the cases IUCD insertion was done by paramedical staff/lady medical officer at PHC/CHC level indicating inadequate training/knowledge of family planning providers regarding proper pelvic examination including uterine size position etc.

The incidence of uterine perforation is as high as 2.2/1000 insertion quoted by Caliskan [7] *et al.* We found 3 cases of misplaced IUCD in extraperitoneal sites. All three inserted during lactational period. However, uterine perforation can occur at the time of insertion or over a period of years through transmigration. Multi centre pharmaco vigilance study found that 42% of women with intrauterine IUS perforation were breast feeding at the time of insertion. Also in EURAS (The European Academy for Standardisation) a six fold increase in the risk of perforation associated with breast feeding was found [8].

Missing thread is frequent problem associated with PPIUCDS, even though IUCDs were inside the uterus hence, the regular and frequent follow-up after the insertion is recommended. Since, IUCD is an important, effective reversible contraception in a growing population in developing countries. In our studies we found 13 cases (28.2%) had PPIUCDs with lost strings and IUCD were intrauterine in nature.

Majority of the researchers suggested that the removal of the missing thread/misplaced IUCD even though they are asymptomatic to prevent further complications. Even WHO (World Health Organization) recommended removal of dislocated IUCD as soon as possible irrespective of their type and location [9]. Commonly available IUCD is CU380A by the Government of India at free of cost followed by multi-load. We found that 73% of cases in our series CU380A. This may indicate the insertion technique (withdrawal) plays an important role in misplaced IUCDs hence, the regular followup is necessary to detect the missing strings.

In our series the device was found at cervical canal in 7 cases (15%), partially embedded to myometrium in 5 cases (10.8%), intrauterine in 30 cases (65%), one had spontaneous expulsion and 3 cases (6.5%) had extrauterine sites. The device was easily removed by artery forceps/hook and DandC. A study by Barsaul [10] *et al.* had 324 cases with misplaced IUCD in them 258 cases (79.93%) CuT was found in uterine cavity and in 47 cases (14.5%) it was removed from cervical canal which correlates with our study. The removal of IUCD is not always easy. It may require endoscopy techniques like hysteroscopy or laparoscopy in difficult cases. In our study 14 cases (30%) the device was retrieved by hysteroscopy which is a safe and effective compared to the blind method. 3 cases (6.5%) which the first case required laparoscopy where the IUCD was embedded in POD and second case was at broad ligament near left Corno and left fallopian tube and the last one was situated above the fundus of the uterus. Hence, the endoscopy techniques have become safe and effective method of removal of misplaced IUCDs. Trivedi SS *et al.* [11] advocated hysteroscopy as a primary method for locating and removing IUDs with missing tails in order to avoid unnecessary X-ray exposure and injuries by blind exploration.

## Conclusion

Hence, IUCDs is a safe and cost effective method of contraception in the developing countries. Proper education and counseling of the beneficiaries regarding the regular follow up is required for early removal of misplaced IUCD. Institutional training of the family planning personnel is necessary for proper insertion to avoid complications. Hysteroscopy guided retrieval of the misplaced IUCD is the Gold Standard.

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