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A Prospective Observational Study on the incidence and outcome of missed strings of postplacental and intracaesarian IUCD

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ABSTRACT-
BACKGROUND-*Missing IUCD string,i.e.,IUCD string that are not visible at the external cervical os are a commonly encountered problem and needs to be analyzed. The objective of this study was to evaluate the incidence and outcome of missing IUCD strings.*
METHOD-*This was a prospective observational study. About 1060 pregnant women were enrolled into the study after an informed written consent regarding the procedure,benefits and complications and need for follow up.Cu T was inserted into the uterine cavity after the delivery of placenta and were followed up at 6 weeks,3 months and 6 months for any complaints ,visibility of threads and for USG for position of Cu IUCDs in uterus. Removal of IUCD was done if indicated or women desired so by simple OPD procedure or in OT.*
RESULTS-*Expulsion was 7.5% in postplacental whereas 4.76%in intracaesarian. Overall expulsion was 6.25%. In missing string case ,59.33% were aymptomatic,pain abdomen in 33.01%,bleeding per vaginum in 37.80%, vaginal discharge in 10.53% and 1.9%in pregnancy.In reason for missing string in cervical canal, curled string was found about in 52.63%. 36.84% were retracted in uterine cavity,2.87%cases string with IUCD were embedded ,0.48% had perforation and translocation into abdominal cavity.In 3.83% absent strings were present and broken strings in 1.44%.*
CONCLUSION-*CuT 380A insertion is a safe and effective method of reversible contraception. Missing strings is emerging as a potential distractor of its use because it raises anxiety in the patient. Hence, these women need counseling regarding continuation of IUCD. Every using woman must be followed up and management of complications is required to maintain popularity.*
KEYWORDS- *Missing strings, expulsion, IUCD removal, USG imaging.*

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I. Introduction

Unwanted and rapid repeat pregnancies have a deliterious effect on both mother and child.IUCD is one of the most commonly used reversible method of control. Unwanted and rapid repeat pregnancies have a deliterious effect on both mother and child.IUCD is one of the most commonly used reversible method of contraception among married woman of reproductive age.

128 million women rely on IUCD for contraception[1]. In India only 2% of married woman of reproductive age use IUCDs[2].

IUCD is underutilized because of the myths and misconceptions prevalent in the community.

Most important of all is "missing IUCD strings" which causes anxiety in patients.

The objective of this study is to analyze the incidence and outcome of missing IUCD strings.

OBJECTIVE

1) To study the incidence of missed strings in postplacental and intracaesarian IUCD

2)To study the outcome of missed strings in postplacental and intracaesarian IUCD

MATERIAL AND METHODS- The study was a prospective observational study.

STUDY LOCATION- Department of Obstetrics and Gynaecology, Dr.SN Medical College, Umaid hospital, Jodhpur, Rajasthan, India.

STUDY PERIOD- August 2019 to January 2020.

INCLUSION CRITERIA- Women (18-45yrs) who delivered by vaginal or caesarian section at Umaid hospital and provided consent for insertion of IUCD within 10 minutes of delivery and willing to participate in the study.

EXCLUSION CRITERIA- Women with history of rupture of membranes>12hours, APH, fever in last trimester, allergic reaction to IUCD/genital tract infection,anomalousuterus,PPH, manual removal of placenta after delivery.

SAMPLE SIZE- The sample size is calculated at alpha error 0.05 and study power 80% assessing proportion of patients who developed complication in 2 groups to be 24% and 17%. Sample size is calculated using the below formula:

$$N = \frac{\left[Z_{1-\alpha}\sqrt{2P(1-P)} + Z_{1-\beta}\sqrt{P_1(1-P_1) + P_2(1-P_2)}\right]^2}{(P_1 - P_2)^2}$$

N-sample size

$Z_{1-}\boldsymbol{\alpha}$ - Standard normal deviate for type 1 error(taken as 1.96 for 95% CI)

$Z_{1-}\boldsymbol{\beta}$- Standard normal deviate for type 2 error(taken as 0.84 for 80%study power)

P_1-Proportion of complications in group a(24%(0.24)as per reference article)

P_2-Proportion of complications in group b(17%(0.17)as per reference article)

Sample size was calculated to be minimum of 522 subjects for each group,which was enhanced and modified to 530 in each group. So,overall sample size was 1060.

II. Methodology

This was a hospital based study. Upon admission women will be counseled about IUCD insertion immediately after delivery.A written informed consent was also taken. A questionnaire was given to fulfill the details of patient's obstetric history,gynaecological history.

Those women who agreed and met the inclusion criteria and had no contraindications IUCD was inserted within 10 minutes postplacental and they were followed up at 6weeks and 3 months post insertion.

Present complaints if any, were asked, i.e., pain, menorrhagia,missed periods, vaginal discharge, urinary symptoms,expelled IUCD.

Per speculum examination to visualize IUCD threads, any abnormal discharge and per vaginumexamination for uterus position,size, mobility,any pelvic/adnexal tenderness/fullness or mass was carried out.

USG pelvis to localize IUCD was done. If IUCD was not localized intrauterine,X-ray pelvis and lower abdomen was done to see its presence or absence.

If on USG,IUCD was found to be embedded hysteroscopy was the treatment of choice.

If woman wanted removal for persistent complaints/desire future pregnancy then removal with artery forceps done.

III. Results

TABLE NO 1-

Table 1aSOCIO-DEMOGRAPHIC CHARACTERISTICS (WITH AGE) EXCLUDING PATIENTS LOST TO FOLLOW UP (N = 1060)

AGE	FREQUENCY	PERCENTAGE
20-25 years	616	58.15 %
26-30 years	318	30.03 %
31-35 years	91	8.56 %
> 35 years	35	3.26 %

Table 1bSOCIO-DEMOGRAPHIC CHARACTERISTICS (WITH NO. OF LIVING CHILDREN) EXCLUDING PATIENTS LOST TO FOLLOW UP (N = 1060)

NO. OF LIVING CHILDREN	FREQUENCY	PERCENTAGE
1	638	60.19 %
2	392	36.96 %
3	30	2.85 %
4	0	0 %

Table 2 TYPES OF INSERTION AND MISSING STRINGS AT 6 WEEKS (N = 1060)

TYPE OF INSERTION	TOTAL FOLLOW UP		IUCD STATUS AT 6 WEEKS			
	FREQUENCY	PERCENTAGE	EXPULSION RATE		RETAINED IUCD RATE	
			FREQ	%	FREQ	%
POST-PLACENTAL	549	51.8 %	42	7.65	507	92.35
INTRA-CESAREAN	511	48.2 %	24	4.76	487	95.2
TOTAL	1060	100 %	66	6.25	994	93.75

Table 3 PRESENTATION OF MISSING STRINGS (EXCLUDING EXPULSION) AT 3 MONTHS (N = 494)

PRESENTATION	FREQEUNCY	PERCENTAGE
ASYMPTOMATIC	178	36.03 %
BLEEDING	114	23.07 %
PAIN ABDOMEN	99	20.00 %
BACKACHE	65	13.16 %
VAGINAL DISCHARGE	32	6.48 %
PREGNANCY	6	1.21 %

Table 4 REASONS OF MISSING STRINGS (EXCLUDING EXPULSION) (N = 300)

REASON	FREQUENCY	PERCENTAGE
CURLED STRINGS IN CERVICAL CANAL	158	52.63 %
RETRACTION INTO UTERINE CAVITY	111	36.84 %
EMBEDDING	9	2.87 %
PREGNANCY	6	1.91 %
PERFORATION AND TRANSLOCATION	1	0.48 %
ABSENT STRINGS	11	3.83 %
BROKEN STRINGS	4	1.44 %

Table 5 STRING STATUS AND CONTINUATION RATE OF PPIUCD AT 6 MONTHS (EXCLUDING EXPULSION) (N = 985)

STRING STATUS	FREQUENCY	REMOVAL RATE	CONTINUATION RATE (PERCENTAGE)
STRINGS VISIBLE	794	142	652 (82.10 %)
STRINGS MISSING	191	61	130 (67.88 %)

TOTAL CONTINUATION FREQUENCY = 782 (79.39 %)

Table 6 PROCEDURES FOR MANAGEMENT (N = 191)

MANAGEMENT	FREQUENCY	PERCENTAGE
RETRIEVAL WITH ARTERY FORCEPS	152	79.58 %
HYSTEROSCOPY	2	1.05 %
LAPAROTOMY	1	0.52 %
TEASING WITH CURETTAGE	36	18.85 %

In our study expulsion was more in post placental group. Demographic distribution (Table 1a) which shows 88.18%of users of age between 20-30yrs.97.15%were having 1or 2 living children (Table 1b).

Most patients with missing strings were asymptomatic about 59.33%. Pain abdomen present in 33.01%,bleeding per vagina in 37.80% and 10.53%had vaginal discharge while 1.91% had pregnancy (Table 3).

Most common reason for missing string was curled strings in the cervical canal about 52.63%, in 36.84%strings were retracted into the uterine cavity without pregnancy.1.91%had pregnancy causing retraction of strings in to the uterine cavity. Strings with IUCD was embedded in 2.87%,perforation and translocation to abdominal cavity was in 0.48%,absent strings in 3.83% and broken strings in 1.44% (Table 4).

Table 5shows visibility of strings in both types postplacental and intracaesarian cases was 82.10%. Missingstrings were present in 67.88%. Total continuation frequency was 79.39%.

Table 6 shows procedures used for diagnosis and management of missing strings. In 79.49% of cases retrieval of strings with artery forceps was done. 18.85% needed curettage while hysteroscopy was done for 2 cases and laparotomy for one case.

Figure 1 X-Ray pelvis showing misplaced IUCD

Figure 2CuT after removal by laparatomy

IV. Discussion

The use of IUCDs has increased over the past years.Visualization of strings of IUCD coming from external cervical os during followup examination ensures the women and the attending doctor that IUCD is in place.

The serious disadvantage of postpartum insertion is high expulsion rate because uterus is contracting and cervix is dilated[6].In present study, it was 7.65% in postplacental and 4.76%in intracaesarian with overall expulsion rate 6.25%. (**Table 2**)

Findings in the present study suggest that expulsion is more common in post placental insertion than intracaesarian.

In a study by GeetaKatheit et al 10.5% was the expulsion rate[7]. Similar study by SunitaSingal, RekhaBharti and others, 5.33% was the expulsion[8].

Various other studies have reported incidence between 4.5%-18.1% of missing IUCD strings[3].

Marchi has reported missing strings in 5%of women[4]. Engoglu et al reported missing strings rate of 3.3%and 7.8%at 6 and 12 months postpartum respectively[9]. This is higher in present study due to use of device CU T 380A with short string than CuT 375[10].

In our study,59.33% women with IUCD threads were found to be aymptomatic and 37.80%had symptoms, i.e,,AUB with or without pain,pain with or without history of expelling the threads (Table 3).

Similar observations were made by Mishra S et al, where more than 50%cases with postpartum IUCD insertion with missing IUCD threads were found to be aymptomatic[5].

Simple pulling the thread with long artery forceps from uterine cavity under sedation was 79.49%.In 18.80%dilation of cervix teasing the device with curette was done to remove the IUCD. Hysteroscopicguided removal done in difficult cases.

Absent strings is a problem where the strings get detached from the IUCD and often women attend clinic with strings.Broken strings are found in 1.44%of missing strings group.

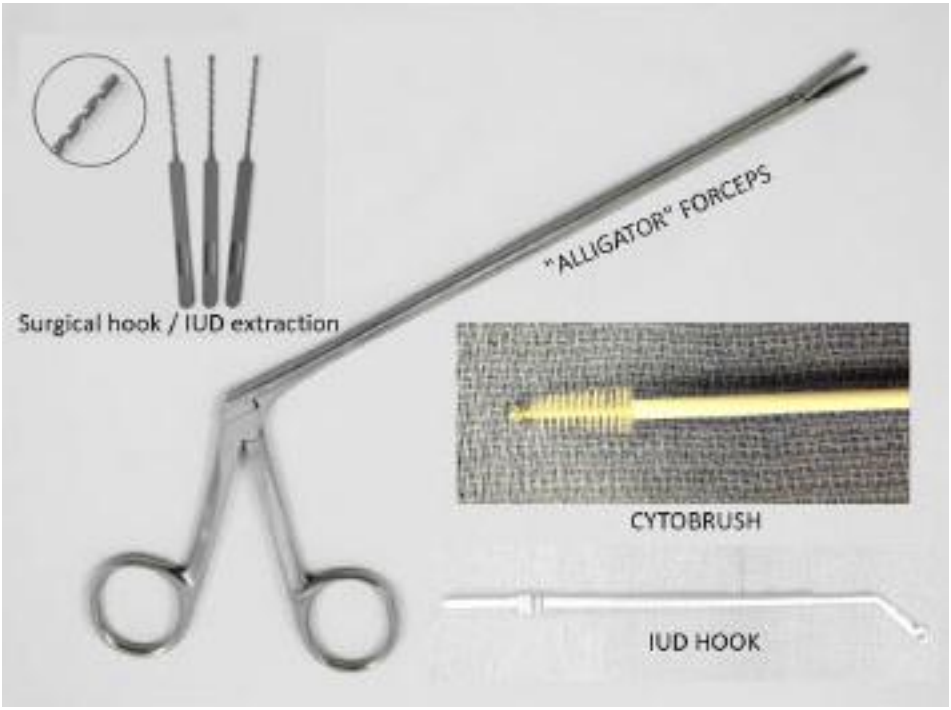

Figure 3 Instruments used to extract missing IUCD strings

Figure 4 TVS showing normally placed IUCD in the uterine cavity

Figure 5 TVS showing IUCD lower in the cervical canal

V. Conclusion

PPIUCD has abundant scope in India. Missing strings is a pertinent problem encountered during PPIUCD follow-ups. Advice for IUCD removal is being rampantly given by health care service provider in such caseswhich should be curtailed.

IUCD related complication (bleeding,pain) to be medically managed first and investigated for other causes.

Missed IUCD should not be considered as problem if USG reveals in situ placement.

Important message "DO NOT PANIC". It is safe&effective and should be widely promoted.

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CONFLICT OF INTEREST

No

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No

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