

Clinical Correlation of Position of Copper T 380a As Determined By Ultrasonography Following Its Insertion In The Immediate Postpartum Period With Subsequent Complication-Observational Study

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Abstract: Background & Objectives: The postpartum insertion of an IUCD provides a convenient opportunity for the woman to receive IUCD services. This is particularly important for women who have limited access to medical care. The postpartum period is potentially an ideal time to begin contraception as women are more strongly motivated to do so at this time, which also has the advantage of being convenient for both patients and health-care providers. Objectives: To determine the rates of expulsion, pelvic infection, lost strings/ displacement, Menstrual irregularity, abdominal pain and uterine perforation following PPIUCD insertion among parturients at 6 weeks and 6 months of post partum. Method: Total of 203 patients were included. Study was conducted from March 2015 to March 2016. Women who accepted the PPIUCD during their postpartum care were inserted with the device before discharge (within 48 hours). These women were followed up at 6 weeks and 6 months for complications. Menstrual irregularity (24.2%) followed by pain in lower abdomen (13.7%), vaginal discharge (5.8%) and expulsion (4.7%). No case of perforation or pregnancy was reported. Statistical analysis was done using Chi-square test. Results: The common complications at six weeks and six months. In total 92 (45.3%) women having complication after PPIUCD. which are more (32.5%) in malposition of PPIUCD. Position of PPIUCD are decided by sonography after PPIUCD insertion. Expulsion, Menstrual irregularity and Abdominal Pain were more significantly with malposition ($p < 0.05$). Interpretation & Conclusion: The clinical examination has its limitations in the assesement of the IUCD position especially in postpartum IUCDs as the threads remain coiled inside the uterus in post-ceserean state. Thus, sonography can be used as an adjunct to clinical examination to examine the position of the IUCD. The removal and re-insertion can be offered in patients with malpositioned IUCDs. Alternatively, these patients could be closely followed up for early detection and prompt management of any complication. [M Patel, Natl J Integr Res Med, 2018; 9(3):26-33]

Key Words: PPIUCD, Ultrasonography, Position of Copper t 380A, Subsequence Complication.

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Introduction: India's Population, which crossed 121 crore (census 2011), is projected to reach 1.53 billion by 2050, making it the most populous country in the world. Intrauterine Contraceptive Devices (IUCD) to prevent pregnancy are among the oldest methods of contraception. The modern IUCD is a highly effective, safe, private, long-acting, coitus independent and rapidly reversible method of contraception with few side effects. Many women also find the IUCD to be very convenient because it requires little attention once it is in place

Potential health risks associated with the IUCD, which are uncommon or rare. Uterine perforation is a rare complication which occurs in 0.5 to 1.5 per 1000 insertions and is associated with level of provider's skill and experience. Infection is highest during the first 20 days after IUCD insertion.

Increasing number of women in developing world are having their babies in hospital. The postpartum IUCD

offers several advantages in such instances. Having just given birth, the woman is clearly not pregnant, and she may be very motivated to consider long-acting methods.⁷ The immediate postpartum IUCD insertion is done after the postplacental period, but within 48 hours of delivery and the transcaesarean IUCD insertion is when the insertion takes place following a caesarean delivery, before the uterine incision is sutured

After birth, as the uterus returns to normal size (involution), uterine contractions expel retained placental tissues and blood clots and may have a similar effect on any foreign body introduced into the uterus. IUCDs inserted postplacentally have a much lower expulsion risk than those inserted later in the postpartum period, although the expulsion is still higher than for interval insertions (about 42 days after childbirth). However, the benefits of providing highly effective contraception immediately after delivery often outweighs the disadvantage of the higher

postpartum expulsion rates. Pregnancy rates do not differ by timing of IUCD insertion:

Aims And Objectives:

Aims: The aims and objectives of the study was the ultrasonographic assessment of the placement of IUCD immediately after insertion. The incidence of complication and their association with the presence of malposition was also studied.

Objectives: To determine proportion of women accepting immediate PPIUCD insertion.

To determine the rates of expulsion, pelvic infection, lost strings/ displacement, Menstrual irregularity, abdominal pain and uterine perforation following PPIUCD insertion among parturients at 6 weeks and 6 months of postpartum.

Methods:

Study Design: The study was a prospective interventional analytical study looking for acceptability and safety of PPIUCD use in women after delivery.

Study Setting: The study was conducted at the Sir T. Hospital Bhavnagar, Antenatal Clinic and Postnatal Ward from March 2015 to March 2016. Maternity services are provided in the Maternity building that consists of seven wards. Four wards which serve as the antenatal and postnatal wards total have a capacity of 90 beds. Although the labour ward was designed for high risk patients referred from other centres, more than half of the women admitted are self-referred coming directly from home after attending antenatal care at other health levels. During a 24 hour period there are between 10 to 15 deliveries. Parturients with no intrapartum or postpartum complications are observed in the labour ward for approximately two hours before being transferred to the adjacent postnatal ward. At the postnatal ward these women are given health education on breastfeeding and nutrition, episiotomy care and general hygiene, cord care for the newborn and family planning. Their newborns are also immunized before discharge. Those women are discharged after 48 hours according to JSSK Guidelines. Those who encounter complications (e.g. Caesarean Section, Antepartum or Postpartum haemorrhage, Hypertensive disorders of pregnancy, poor neonatal conditions) are transferred to the respective postnatal wards for further management

while their newborns are admitted to the neonatal unit.

The postpartum family planning services offered are in the form of health education in group counselling sessions at the postnatal ward. These are done by well-trained FP counsellors. Methods offered include OCP's (Oral Contraceptive Pills), DMPA (Depot Medroxy Progesterone Acetate), Implants, IUCD's and condoms.

Study period:

The study was conducted from March 2015 to March 2016.

Study Population:

The study population included all women who delivered at Sir.T. Hospital during the study period.

Sample Size:

Sample size was obtained by the formula:

$$n = z^2 \times p \times (1-p) / d^2$$

where

n = sample size

z = 1.96 corresponding to 95% confidence interval

p = proportion of parturients accepting PPIUCD

d = margin of error set at 5%

The minimum sample size was estimated at

$$N = (1.96)^2 \times 15.2 \times 84.8 / (5)^2$$

N = 198

The minimum sample size was taken to be 198.

A study done in Sir T Hospital showed acceptability of PPIUCD to be 15.6% therefore a sample size (n) of 203 was taken.

Eligibility criteria:-

Inclusion criteria:-

18-45 years old.

GA 36-40 weeks.

Desire to have CuT 380 A after counseling before insertion.

No infection.

Hb> 8 g/dl.

AMTSL universally provided after the delivery of the infant.

Exclusion Criteria:-

Fever during labor and delivery.

Having active STD or other lower genital tract infection or high risk for STD.

Known to have ruptured membranes for more than 24 h prior to delivery.

Known uterine abnormalities e.g. Bicornuate/septate Uterus, uterine myomas.

Manual removal of the placenta.

Unresolved postpartum hemorrhage or postpartum uterine atony requiring use of additional oxytocin agents in addition to AMTSL.

Outcome measures: All the patients will be evaluated on the basis of following measures at every visit at 6 week and 6 month, unless specified:

Per speculum and per vaginal examination

Radiological examination:-(if needed)

1. Ultrasonography
2. X-ray abdomen with uterine sound as guide.

On basis of position and distance measured from fundus, the malpositioning of the IUCD was further labelled as

1. Midcavity placement: IUCD was placed linearly in midline with Fundus measured to be more than 15 mm.
2. Lateralised placement: Fundally placed upright IUCD with appropriate Distance from fundus not in midline.
3. Lower segment placement: Linearly placed IUCD lying visible in lower uterine segment.
4. Oblique or inverted placement: IUCD lying anywhere in the cavity which Were visibly oblique or inversely placed.

Complication observed at 6 week and 6 month follow up visits are expulsion, menstrual irregularity, lower abdominal pain, vaginal discharge.

Data Entry And Analysis: Summary statistics were calculated for the baseline characteristics. The frequencies of IUCD malposition, complication rates and adverse effects were reported in percentages. Data will be expressed in proportions'. Mainly descriptive statistics used. Qualitative proportions between malposition present and absent groups will be compared using chi square test. p value less than

0.05 was taken as statistically significant. Odd ratio will be calculated.

Results: The total number of deliveries during the study period was 1496. Among these deliveries 1302 women were eligible for PPIUCD insertion. Out of that 1099 patients refused consent for enrollment. Thus, in total 203 patient was studies. Those women whom the PPIUCD was inserted were followed up at 6 week and 6 months. Thus in total, 203 patients were studied. One Hundred fifty two patients had Copper T 380A insertion after normal vaginal delivery, and Fifty one patients had insertion during the Cesarean section .out of 152 patients undergoing IUCD insertion after normal vaginal delivary,128 women had IUCD inserted by Kelly's Long placental forceps,15 had IUCD inserted by manual technique and 13 by sponge holding forceps.

On ultrasonographic evaluation done following IUCD insertion, 90/203 women were found to have misplaced IUCDs. Out of 90 malpositions identified, 52 were midcavity placement, 12 were oblique placement, 8 were lateralized placement, 18 were lower uterine segment placement.

The complication among the IUCD users in the study population included menstrual irregularity (46/190; 24.2%), pain in lower abdomen (26/190; 13.7%),Expulsion (21/190; 11.1%), Vaginal discharge (11/190; 5.8%).No perforation or pregnancy was observed.

Table 7 shows the frequencies of the complications and the adverse effects of the copper T 380 A in relation to the malposition as assessed by ultrasound. The IUCD expulsions, menstrual irregularity, and pain were more significantly in patients with malpositions (p< 0.05).

Table 1: Socio-demographic and Obstetric Characteristic of the parturient included in the study

Characteristic	Total Counselling		Accepted		Declined	
Total	N=1302	(%)	N=203	(%)	N=1099	N (%)
Age						
<20	65	5.0	35	17.2	30	2.7
20-29	832	63.9	150	73.9	682	62.1
30-39	405	31.1	18	8.9	387	35.2

Religion						
Hindu	874	67.1	118	58.1	756	68.8
Muslim	428	32.9	85	41.9	343	31.2
Occupation						
Housewife	1156	88.8	181	89.2	975	88.7
Employed	146	11.2	22	10.8	124	11.3
Educational Status						
Illiterate	352	27.0	62	30.5	290	26.4
Primary	624	47.9	92	45.3	532	48.4
Secondary	220	16.9	34	16.7	186	16.9
Higher Education	108	8.3	15	7.4	93	8.5
Economic Status						
Low	761	58.4	123	60.6	638	58.1
Medium	406	31.2	62	30.5	344	31.3
High	135	10.4	18	8.9	117	10.6
Parity						
1	824	63.3	83	40.9	741	67.4
2	309	23.7	84	41.4	225	20.5
3 or >3	169	13.0	36	17.7	133	12.1
Last Child Birth						
0-2 year	567	43.5	93	45.8	474	43.1
2-3 year	448	34.4	71	35.0	377	34.3
3-4 year	219	16.8	30	14.8	189	17.2
>4 year	68	5.2	9	4.4	59	5.4

Table 2: Reason for acceptance among the parturient included in the study

No.	Reason for acceptance	N=203	%
1	Safe	92	45.3
2	Long term	42	20.7
3	Non hormonal	10	4.9
4	Fewer clinic visits	0	0.0
5	No remembrance once inserted	121	59.6
6	Reversible	94	46.3
7	No interference with breast feeding	16	7.9

Table 3: Reason for refusal among the parturient included in the Study

No.	Reasons for refusal	N=1099	%
1	Need to discuss with Partner	384	38.7
2	Fear of pain and heavy bleeding	311	31.4
3	Partner and family refusal	346	34.9
4	Not enough knowledge about PPIUCD	521	52.5
5	Prefer to use another method	108	10.9
6	Interferes with sexual intercourse	3	0.3
7	Religion Belief	1	0.1

Table 4: Types of PPIUCD insertion

No	Type of insertion	Total No (N-203)	%
1	Post-Placental	55	27
2	Immediate Postpartum	97	48
3	Intra Caesarean	51	25

Table 5: Follow - up status of the clients in the study

No.	No. Of accepters followed-up	At 6 week	%	At 6 month	%
1	Follow-up (at clinic)	158	83.2	112	58.9
2	Follow-up (over phone)	32	16.8	78	41.1

Table 6: Complication among the clients in the study

No.	Complication	N=190	%	At 6 week	At 6 month
1	Expulsion	21	11.1	18	3
2	Menstrual Irregularity	46	24.2	34	12
3	Lower Abdominal Pain	26	13.7	19	7
4	Vaginal Discharge	11	5.8	5	6

Table 7: Frequencies of the complication and adverse effects of the copper T 380A in relation to the malposition of the copper T 380A

complication Observed	Malposition present	Malposition Absent	p Value
Expulsion	19	2	0.000027
Vaginal Discharge	7	4	0.298
Menstrual irregularity	33	13	0.0002
Lower abdominal pain	18	8	0.0222

Table 8: Distribution of complication and adverse effects with respect to type of mal position in post partum group

No.	Total Malposition (90)	Total	Vaginal Discharge	Expulsion	Lower Abdominal Pain	Menstrual irregularity			
						A	B	C	Total
1	Midcavity Placement	52	4	2	9	9	4	6	19
2	Inverted/ Oblique placement	12	0	4	7	4	5	0	9
3	Lateralized placement	8	0	1	0	0	0	0	0
4	Lower uterine segment placement	18	3	12	4	4	3	0	7
5	Correctly placed	113	4	2	6	6	4	1	11
6	Total	203	11	21	26	23	16	7	46

*A – Menorrhagia , B - Metrorrhagia , C- Menometrorrhagia

Discussion: In this study, the proportion of parturients accepting PPIUCD and their socio-demographic and obstetric characteristics was determined. Majority of the women (45.3%) in the study population had at least a primary level of education. women with no formal education had an acceptance of 30.5% while those with education was 69.5%.

The duration since the parturients last child birth was significantly associated with acceptance of PPIUCD. More than a third of the parturients (17.7%) who had

the PPIUCD inserted had their previous childbirth less than two years ago. This could be explained that women who had a short pregnancy interval to the index pregnancy felt they required a long acting and reliable method of contraception. This also has the added advantage of giving the mother enough time to recover from the physical stress of one pregnancy before moving on to the next and gives enough time for lactation. In a report released by WHO in 2006, healthy timing and spacing of pregnancies has a positive effect on maternal health and newborn

outcomes. Acceptance of the PPIUCD was higher among grand multiparous (59.1%) compared to primiparous (40.9%).

Among women whom PPIUCD was inserted, 20.7% accepted due to its long term effect, 45.3% due its safety and 59.6% due to not to remember once inserted. This shows that postpartum women need a contraceptive method which is long acting, safe and convenient.

A significant number of women declined the PPIUCD because of non partner involvement. This reveals the importance of partner involvement during counseling and decision making. Many studies have shown that when the partner is involved in contraceptive counseling and decision making, the acceptance and continuation rates were higher. Unfortunately in our setup women who visit the antenatal clinic are usually not accompanied by their partners and therefore couple counseling is lost during this period. Furthermore, during the short postpartum care partners usually come in contact with their spouses during discharge which is not appropriate for counseling. If the partners fail to agree on the method, or do not know how to use it well, even highly effective method will not be used well. Therefore, this is a good reason for including both partners when helping a couple to choose a contraceptive method which will also increase the compliance.

The aim of the study was to correlate the position of IUCD in the uterine cavity in immediate postpartum period to the expulsion rate and other adverse effects observed over period of 6 months. Studies have been done in past to identify the misplaced IUCDs by different imaging modalities irrespective of the time and method of insertion, but there is few study in literature, describing the correct position of the IUCDs in term of the ultrasonographics parameters in the immediate postpartum period. This study was done to identify the malpositioned IUCDs by ultrasonography done within 48 hours of insertion of IUCDs and explore its association with the side effects observed after 6 week and 6 months of follow up. Identification of any type of malposition of the IUCD, before the patient is discharged, would help in screening out the high-risk patient, and an option of re-insertion of IUCD could be offered. In the present study, we could identify misplacement of the IUCD among 104

women, as per the predefined parameters. There is paucity of studies describing the exact frequency of the malpositioned IUCD observed in immediate postpartum period. out of all types of the malpositions observed we found that lateralized placements were associated with no side effects; thus, we conclude that IUCDs found to be placed lateralized in the uterine cavity are of least concern to the patient and caregiver. on other hand, Lower uterine segment placed IUCDs were found to be associated with maximum number of side effects and it should be followed up stringently. The most common complaint among the IUCD users in the study population was of menstrual irregularity (24.2%) followed by pain in lower abdomen (13.7%), vaginal discharge (5.8%) and expulsion (11.1%). No case of perforation or pregnancy was reported.

Statistically significant association was found with the side effects like Expulsion, menstrual irregularity and pain. The number of correct placement could be used as an indicator of personnel training. regular training of personnel with audit may help in reducing the number of malpositions, reduce the complication rate, and thus increase the acceptance of the IUCD.

This study was conducted in a tertiary centre therefore the findings may not adequately reflect the entire region. Lost to follow up as observed in the study was a limitation of the study. This made it difficult to draw a clear conclusion as what happened to those who did not complete their follow up schedule.

Conclusion: nserting Cu-T 380A postpartum is safe leading to expanding of the usage of IUCD meeting the unmet needs. Awareness of the PPIUCD among these women was very poor despite high acceptance.

Majority of women never heard about the PPIUCD before admission to labor room. Acceptance is higher among the women who had at least primary education. The PPIUCD was demonstrably safe having no reported incidence of perforation with low rate of expulsion.

The Government needs to develops strategies for public awareness of PPIUCD through different media sources. It is also important to arrange for training on PPIUCD in order to increase knowledge and skills among healthcare providers. This will also further

promote PPIUCD use and aid in reduction of the expulsion rate.

The clinical examination has its limitations in the assessment of the IUCD position especially in postpartum IUCDs as the threads remain coiled inside the uterus in post-caesarean state. Thus, ultrasonography can be used as an adjunct to clinical examination to examine the position of the IUCD. The removal and re-insertion can be offered in patients with malpositioned IUCDs. Alternatively, these patients could be closely followed up for early detection and prompt management of any complication.

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