



## POST PARTUM INTRA UTERINE CONTRACEPTIVE DEVICE: A PROSPECTIVE STUDY

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### ABSTRACT

**Background:** This study explores into the demographic profile of women who accept Post Partum Intra Uterine Contraceptive Device, the dynamics of their decision making process, their satisfaction with this method of contraception, and complications, which have not been well characterized yet.

**Methods:** The subjects were patients who have received a PPIUCD, were followed up, at 6 weeks and 6 months of delivery and their demographic characteristics, satisfaction, complications observed after insertion were studied.

**Results:** 274 cases were enrolled. Majority of participants belonged to 20-25 years. After 6 weeks, no pregnancies were reported, majority had no complaints. The most common complaint was vaginal discharge, expulsion rate was 1.16%. The most common cause of removal was menstrual complaints. Failure rate was 0.9%.

**Conclusions:** PPIUCDs are an extremely effective method of contraception. The complications are extremely less. Hence, it is an excellent new contraceptive method in the postpartum period.

**KEYWORDS :** PPIUCD, Cu-T, CU-T 380A, Post partum family Planning

### INTRODUCTION

Postpartum family planning (PPFP) is the prevention of unintended and closely spaced pregnancies through the first twelve months following childbirth. Postpartum women need a range of effective contraceptive methods to be able to prevent an unplanned pregnancy, within a short interval.

In India, the 2005–2006 National Family Health Survey (NFHS) reported that 61% of births were spaced less than three years<sup>1</sup> and that 22% of married women had an unmet need for family planning. A subsequent stratified analysis suggested that 65% of women in the first year postpartum had an unmet need for family planning<sup>2</sup>.

In 2005, the Government of India launched the Janani Sukraksha Yojana (JSY), a conditional cash transfer scheme, to encourage the use of facilities for care at birth<sup>3</sup>. Since the inception of JSY, facility-based births in the public sector have increased from 700,000 in 2005 more than 11 million in 2012.<sup>4</sup>

Among the options available, the multi-year cost of the Copper T380A IUD makes it one of the most cost-effective contraceptive options available to all women regardless of breastfeeding status. Insertion of post-partum IUCD appears appealing for several reasons to the mother who has just borne the stress of child birth: commencement of ovulation is unpredictable after delivery, women wish to avoid pregnancy, but still may not be using any form of contraception, delivery may be only time when a healthy woman comes in contact with health care providers<sup>5</sup>, women is likely to be highly motivated for accepting contraception during post-partum, long term and reversible method, newer understanding about IUCD in terms of acceptability, low expulsion when inserted by proper technique, cost effectiveness, safety and feasibility of inserting immediately after child birth<sup>6</sup>.

According to the World Health Organization Medical Eligibility Criteria, an IUCD can be inserted in the 48 hours postpartum, referred to here as a postpartum IUCD (PPIUCD), or after four weeks following a birth.<sup>7</sup>

IUCDs are used by only two percent of current users of contraception in India. With increasing numbers of women electing to give birth in health institutions, the Government of India decided to strengthen PPFP and to introduce PPIUCD services.

PPIUCDs are still emerging as a relatively new contraception

choice in India. It is important to generate evidence on the post-insertion outcomes after the introduction of PPIUCD program. Additionally, information related to the demographic profile of women who accept PPIUCDs, the dynamics of their decision making process, their satisfaction with this method of contraception, and complications with the IUCD have not been well characterized.

Therefore, this study is a prospective, observational study on women who received PPIUCDs in a tertiary hospital set-up.

### METHODS

This is a prospective, descriptive and observational study of Post-Partum Intra- Uterine Contraceptive Devices. The study carried out in Department of Gynaecology of tertiary care hospital, after approval of college ethical committee. The study subjects consisted of all women, who delivered at a tertiary care hospital, between November 2015 and November 2016 and have received a PPIUCD. Subjects were interviewed prior to delivery, at the time of discharge after receiving a PPIUCD and follow up six weeks later and second follow up after 6 months.

### AIMS AND OBJECTIVES

1. To determine the demographic characteristics of women who accepted PPIUCDs immediately after deliveries
2. The perception, satisfaction and feedback of women with PPIUCDs
3. The complications observed after insertion of PPIUCDs.

### Inclusion Criteria:

All antenatal patients admitted for delivery to our hospital were counselled for PPIUCD. Consent was obtained from those, who opted for insertion; among those who fulfilled the following criteria were considered for inclusion:

- 18–45 years old.
- Gestational Age 36–40 weeks.
- Desire to have Cu-T after counselling before insertion.
- No infections.
- Haemoglobin  $\geq$  8 g/dl.

### Exclusion Criteria:

- Fever during labour 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,

**RESULTS**

A total of 274 women accepted PPIUCD in this study. Out of which 86.5% were vaginal insertions and 13.50% were intra-Caesarean insertions. Majority of participants belonged to 20-25 years of age (47.81%) and 67.51% were primary or secondary school educated. Higher education group constituted only 9.85% showing the need for increased public awareness in order to convince the higher social strata. Evaluation of their clinical profile revealed that primiparas constituted the majority (50.64%), while multi paras were not very enthusiastic for PPIUCD insertion as they preferred permanent sterilisation. Acceptance was better when counselled in early labour (60.21%) compared to antenatal counselling (39.78%). Majority of these acceptors of PPIUCD were seen to have their last child birth less than 2 years ago (54.74%) and most of them (53.64%) did not use any method of contraception previously, thus making them newly aware of various methods of contraception, especially PPIUCD. 66.78% of patients were desirous of further child bearing, thus making PPIUCD the temporary contraceptive method of choice for them.

**1<sup>st</sup> Follow-up**

Follow up clinic attendance of PPIUCD were 258 (94.16%) at or less than 6 weeks after delivery, the dropout rate being 5.8%. At this follow-up all these patients were subjected to a urine pregnancy test, which was negative in all the patients. Majority of patients had no complaints (56.20%). 46 patients presented at the end of 6 weeks with vaginal discharge which responded to reassurance and antifungal treatment. Only 23 patients had menstrual complaints, mostly in the form of menorrhagia. 11 (4.26%) patients had missing threads. There was no case of puerperal sepsis, uterine perforation or IUCD failure within the first 6 weeks after delivery.

**Table 1: Patients' Complaints**

Complaints	Percentage of patients (n=258)
None	56.20% (145)
Vaginal Discharge	17.82% (46)
Pelvic Pain	12.79% (33)
Menstrual Complaints	8.91% (23)
Missing threads	4.26% (11)
Total	100% (258)

On examination, 11 more patients were incidentally found to have missing threads, thus (11+11) 22 patients had missing PPIUCD threads by 6 weeks after delivery. Out of these, 3 PPIUCDs (all vaginal insertions after 10 minutes of placental expulsion but within 48 hours of delivery) were spontaneously expelled, as confirmed by examination and radiological imaging. This could be due to improper fundal placement or string entangled in the Kelly's forceps causing downward displacement.

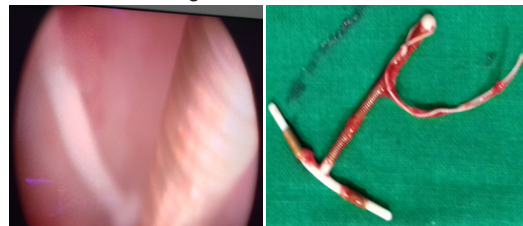
In the other, 19 cases of PPIUCDs with missing threads, the threads were found deep within the uterine cavity after radiological confirmation. After confirmation of its presence in the uterine cavity with the help of USG and explaining the pros and cons of removing the PPIUCD, 7 PPIUCDs were removed, 2 done hysteroscopically and rest manually and 12 such patients with missing threads, confirmed to be intrauterine radiologically were followed up in the next 6 months.

**Table 2: Fate Of Missing PPIUCD Threads (n=22)**

Expelled Spontaneously	3
Removed	7
Not removed	12

All these patients (12), who continued to follow up with missing threads, had intra-Caesarean insertions. This shows that the

chances of migration of threads or deeply seated PPIUCDs are more commonly seen in patients with intra-Caesarean insertions than with vaginal insertions.



**Figure 1: Hysteroscopically removed PPIUCD**

Expulsion rate within the first 6 weeks post-delivery was 1.16% (3 patients) and no failures.

Total PPIUCDs removed within the first 6 weeks of delivery was 27/255 (10.58%), the most common reason for removal was menstrual complaints in the form of menorrhagia, irregular spotting P/v and dysmenorrhoea, i.e., 37.03% (10) followed by missing threads (25.92%) and vaginal discharge (22.22%).

**Table3: Reasons For Removal Of PPIUCD**

Reason for removal of PPIUCD	Percentage of cases (n=27)
Menstrual complaints	37.03% (10)
Missing threads	25.92% (7)
Vaginal Discharge	22.22% (6)
Pelvic Pain	11.11% (3)
Others	3.70% (1)

**2nd Follow-up**

The patients were again followed up after 6 weeks but within 6 months of delivery. This time 221 patients out of 228 came for follow up, dropout rate being 3.07%.

This time again, all patients were subjected to a urine pregnancy test. It was positive in two patients.

**Table4: UPT Positive Patients**

	Patient 1	Patient 2
Age	22	28
Total living issues	1	2
Prev h/o contraceptive use	none	Oral contraceptive
Mode of delivery	Vaginal	Vaginal
Timing of insertion of PPIUCD	Immediate Post partum	Immediate Post partum
Complaints in prev f/u	none	none
Presenting complaints	Bleeding P/V	Bleeding P/V
PPIUCD on per speculum examination	In-situ	In-situ
USG findings	No e/o intra/extruterine G sac, s/o ? Complete abortion	E/o 3.6 x 4.3 cm sized endometrial collection with peripheral vascularity s/o ?RPOCS
Treatment modality	S. BHCG was sent which was <2.00.	Pt was subjected for a check curettage
Ultimate fate of PPIUCD	PPIUCD removed	PPIUCD removed

74.66% patients had no complaints, whereas 13.12% patients presented with vaginal discharge and only 5.35% patients had menstrual abnormalities. There were 3 patients with missing threads. All patients with missing threads have expelled PPIUCD spontaneously as evidenced by examination and radiological findings.

On examination, of all those patients who had missing threads on examination, but present on Ultrasound, in the previous follow-up and PPIUCD were not removed, their threads were now visible on per speculum examination. This shows that as the uterus retracts to its pre pregnant state, the PPIUCD descends and threads become visible at the external os.

This time again, 26 PPIUCDs were removed, the commonest reason for removal being menstrual abnormalities (38.46%). 26.92% PPIUCDs were removed, as these patients had made up their minds to undergo permanent sterilisation and 11.53% (3) patients were planning another pregnancy.

3 PPIUCDs were expelled spontaneously during the second follow-up.

### IN TOTAL

Out of 6 PPIUCDs expelled after both follow-ups, 1 was inserted intra-Caesarean and 4 out of 6 were inserted within 48hrs of delivery. This shows that expulsion rates are higher with delayed insertion of PPIUCDS than immediate post placental. Total expulsion rate in the first follow up was 1.16% and second follow up was 1.35%, average expulsion rate was 1.25%

This study started off with 274 PPIUCD acceptors. The dropout rate at the first follow up was 5.83% and at second follow up was 3.07%, total dropout rate after two follow ups were 8.39%. The total continuation rate after two follow ups was 85.97%. The failure rate of PPIUCDs in this study is 0.9 % (1.46/100 women years).

### DISCUSSION

A total of 274 women accepted PPIUCD of which 86.5% were vaginal insertions and 13.50% were intra-Caesarean insertions. Out of the total vaginal insertions, 84.84% were post placental insertions, 15.18% were within 48 hours of delivery. Similar figures are seen in a study conducted by Ranjana et al.<sup>8</sup> (n=236), 58 (42.64%) insertions were intra-caesarean and 78 (57.35%) IUCDs were placed after vaginal delivery, among which 72 cases (52.94%) were post placental and 6 cases (4.41%) were immediate postpartum.

Majority of participants belonged to 20-25 years of age (47.81%). The youngest acceptor of PPIUCD was 18 years and oldest was 37years, the mean age being 24.82 years as confirmed by Sudha CP et al.<sup>9</sup>, wherein most of the patients accepting PPIUCD were in the age group 19-24 years. The mean age being 24.22+3.79 yrs. Ashwathy et al<sup>10</sup> also had majority of PPIUCD acceptors belonging to 20-25 years of age (50.3%)

Evaluation of their clinical profile revealed that primiparas constituted the majority (50.64%), while multi paras were not very enthusiastic for PPIUCD insertion as they preferred permanent sterilisation, similar to Sujnanendra Mishra<sup>11</sup>.

Acceptance was better when counselled in early labour (60.21%) compared to antenatal counselling (39.78) similar to Aswathy et al. wherein acceptance when counselled in early labour acceptance was 56% and in antenatal period was 44%. Those patients who were willing to accept during the antenatal period become reluctant later as they are more exposed to rumours and myths regarding copper T. Many studies have shown that when the husband is involved in counselling and decision making the acceptance and continuation rates were higher. A randomized prospective study conducted by Smith et al<sup>12</sup> in antenatal clinics in China, Scotland and South Africa in which some women received information on contraception in antenatal care and some did not, found no difference in subsequent contraceptive use. Another study by Mohammed. SA et al<sup>13</sup> to evaluate factors affecting acceptance found the same rate during antenatal and post-partum counselling. However; providing key essential messages at all contact points during the maternity cycle will increase the proportion of women who received the information and are able to make an informed decision.

Majority of these acceptors of PPIUCD were seen to have their last child birth less than 2 years ago (54.74%) similar to studies by Mishra Sujnanendra, and Ranjana et al.

Women with IUCDs are more apprehensive regarding the symptom of vaginal discharge. In women reporting with symptoms of unusual discharge actual infection was extremely low on clinical evaluation. A multicentric study from

India reported an overall infection rate of 4.5% with PPIUCD.<sup>14</sup> Welkovic et al<sup>15</sup> compared the infection rate among IUCD users and non-users and found no difference. In this study, the commonest complaint in the first and second follow up was leucorrhoea (17.82%, 13.12% respectively) Ashwathy et al reported 5.17% of patients presented with vaginal discharge.

In this study, menstrual complaints, in the form of menorrhagia, irregular spotting, dysmenorrhoea, in the first follow-up was 8.91% and 5.35% respectively. The study by Ranjana et al showed Twenty-one women (17.79%) women had heavy menstrual bleeding. ManjuShukla et al<sup>16</sup>, in their study used Cu T 200 B in immediate post-partum period and found that 27.23% women had complained of heavy bleeding during menstruation.

The commonest reason for removal of PPIUCD was menstrual complaints in the first (37.03%) and second (38.46%) follow-ups. The commonest cause for removal was menorrhagia and pelvic pain as per Ranjana et al. Ashwathy et al reported removal of PPIUCD in 2 patients at one year follow up due to persistent menorrhagia not relieved by tranexamic acid.

In present study, no case of perforation occurred. The possible reason for low perforation rate in post placental insertion is due to thick uterine wall and inserter's expertise. In accordance to our study, no perforations were reported in post placental IUD insertion in the studies done by Kapp et al<sup>17</sup> and Gupta G et al<sup>18</sup> which matches our study.

Expulsion rates of immediate PPIUCD showed controversial results. There is debate whether difference in expulsion rates are related to the time of insertion, type of IUCD, technique of insertion and skill and expertise of service provider. Expulsion of PPIUCD usually occurs in the first few months after insertion. A study by Eroglu K et al<sup>19</sup> expulsion rates are higher with postpartum insertion (within 48 hrs of delivery) than immediate post placental insertion (within 10 minutes of placental delivery). UN POPIN report<sup>20</sup> stated 6 month cumulative expulsion rate of 9% for post placental compared with 37 % for postpartum insertions. Gupta et al reported lower expulsions after caesarean insertions than vaginal delivery. In the study by Ashwathy et al, there was no expulsion in the caesarean group while 2 cases of expulsion occurred in the vaginal delivery group. Kittur S<sup>21</sup> reported expulsion of PPIUCD to be 5.23%.

In this study the expulsion rate of PPIUCD was 1.16% within the first 6 weeks of insertion. All these patients have delivered vaginally, however the insertion timing was not post placental but within 48hours of delivery. 1.35% after 6weeks but within 6 months of its insertion, again all insertions were vaginal and 2 insertions were within the 1st 48hrs of delivery. This has emphasis on the correct fundal placement of the device and avoiding downward displacement both during vaginal and caesarean insertions.

One of the main observations at follow up was the missing strings. But there was limited literature regarding missing strings in PPIUCD insertion. Ashwathy et al, showed the significantly high occurrence of missing strings with postpartum IUCD (34.5%). This was significantly higher with Caesarean placements than with vaginal insertions (48.5% versus 25%). In this study, missing threads were seen in 8.52% and 1.35% percent of patients in the first and second follow-up respectively. All the cases of missing threads which were confirmed to be intrauterine by radiology were intra-Caesarean insertions.

### CONCLUSION

PPIUCDs is an extremely effective, safe, long lasting, rapidly

reversible, non hormonal method of contraception that does not interfere with intercourse, breast feeding, is not subject to forgetfulness, and once inserted, is not subject to changes in medical supply or access to health care. In many ways, insertion of IUDs in the postpartum setting is ideal as women are highly motivated to use contraception at this time .The acceptance rate of PPIUCDS are high because of the motivation and counselling done during the antenatal period and early labour. In our study, as compared to interval IUCDS, PPIUCDS have a lesser incidence of complications, though failure rate of both modalities of contraception are almost the same. This is a novel contraceptive modality, not very well known in developing countries like ours. Considering its affordability, reversibility, efficacy, safety and acceptability, it should be offered as an option of contraception to all postpartum women, as they cannot use hormonal pills, injectables and other methods of contraception.

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