



Original Article

## A Prospective Study on Postpartum Intrauterine Contraceptive Devices (PPIUCD) As a Method of Contraception at A Tertiary Care Centre

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### ABSTRACT

**Background:** Postpartum family planning plays a crucial role in reducing unintended pregnancies and improving maternal and child health outcomes. The postpartum intrauterine contraceptive device (PPIUCD) is a safe, effective, and reversible method of contraception that can be inserted immediately after delivery.

**Objectives:** To evaluate the awareness, acceptance, safety, efficacy, complications, continuation, and expulsion rates of PPIUCD (Cu-T) among women delivering at a tertiary care centre.

**Methods:** A prospective observational study was conducted at GMERS Medical College and Hospital, Sola, Ahmedabad, over a period of 24 months. A total of 333 women who consented to PPIUCD insertion were included. Follow-up assessments were carried out at 6 weeks, 6 months, and 1 year to evaluate outcomes including complications, expulsion, and continuation rates.

**Results:** Out of 5565 deliveries, 1302 women accepted PPIUCD insertion, giving an insertion rate of 23.39%. The majority of participants (77.5%) were aged 21–30 years, and 72.4% belonged to urban areas. Nearly 46.5% of women had not used any contraceptive method previously, and 72.7% had no prior knowledge of PPIUCD. Most insertions occurred during caesarean section (49.8%) or immediately postpartum. Continuation rates were high at 94.4%, 94.41%, and 96% at 6 weeks, 6 months, and 1 year respectively. Expulsion rates remained low (2.12% at 6 weeks, 2.54% at 6 months, and 1.14% at 1 year). The majority of women experienced no complications, with minor issues such as string problems, abdominal pain, and bleeding reported in a small proportion.

**Conclusion:** PPIUCD is a safe, effective, and reliable method of postpartum contraception with high continuation rates and minimal complications. Despite its advantages and free availability, its utilization remains suboptimal. Increasing awareness, improving counselling, and strengthening training programs for healthcare providers can enhance its acceptance and use.

**Keywords:** Postpartum intrauterine contraceptive device, PPIUCD, postpartum contraception, family planning, Cu-T, expulsion rate, continuation rate, maternal health, contraception acceptance, tertiary care centre.

### INTRODUCTION

Postpartum family planning is essential for reducing unintended pregnancies. PPIUCD is a safe and effective, reversible contraceptive method. It is a Prospective observational study among 333 women accepting PPIUCD insertion. Insertion rate was 23.39%. Expulsion rates remained low. PPIUCD is a reliable postpartum contraceptive method with minimal complications. India continues to face high unmet need for contraceptions. PPIUCD offers immediate postpartum contraception with high efficiency and convenience before discharge.

### AIMS AND OBJECTIVES

Study to evaluate the awareness, acceptance, Safety, Efficacy, complications and expulsion rate of postpartum intrauterine contraceptive devices(PPIUCD CU-T).

**PRIMARY OBJECTIVE:** To evaluate safety and efficacy of postpartum IUCD(CU-T).

**SECONDARY OBJECTIVES:**

- 1) To determine incidence rate
- 2) To determine rate of occurrence of complications
- 3) To determine incidence of DUB
- 4) To determine continuation rate
- 5) To evaluate failure rate
- 6) To determine expulsion rate

**MATERIAL AND METHOD**

A prospective observational study was conducted at GMERS MEDICAL COLLEGE AND HOSPITAL,SOLA. Women delivery at the institute and consenting for PPIUCD were included in the study. Follow up visits were scheduled at 6 week, 6 Months and 1 year.

**STUDY DESIGN**

- It is a observational study approved by Ethical committee of hospital.
- The study was conducted over period of 24 months.
- The data was collected from labour room record register for comparison.
- All patients fulfilling inclusion criteria were included in the study.

**SAMPLE SIZE:**

The sample size will consist of all the patients undergoing PPIUCD(CU-T).

Insertion in the time frame of this study(June 2022 to June 2023).

Sample size: according to below study prevalence of acceptance rate of PPIUCD was 38% (Kant et al) [1]

Where p= Prevalence of acceptance rate of PPIUCD.

$q = 1 - p$

I= Relative allowable Error

Sample size=  $4 * 38 * 62 / 0.57 = 290$

Taking 15% lost to follow up= 43

Sample size=  $290 + 43 = 333$

**STUDY DURATION**

From JUNE 2022 to JUNE 2024.

**STUDY POPULATION**

Women opted for insertion of IUCD(Cu T) in labour room of obstetrics and gynaecology department, Sola. Women who were delivered vaginally and by caesarean section fulfilling the inclusion criteria in GMERS MEDICAL COLLEGE AND HOSPITAL,SOLA, AHMEDABAD.

**INCLUSION CRITERIA**

All obstetric patients who were willing for postpartum intrauterine contraceptive device coming to labour room.

**EXCLUSION CRITERIA**

- 1) Patient who does not give consent
- 2) Fever during labour and delivery (Temp>38°celsius)
- 3) Anemia (Hb<8gm/dl)
- 4) Known to have ruptured membranes for>18hrs prior to delivery.
- 5) Known uterine abnormalities eg. Bicornuate/Septate uterus, uterine myoma.
- 6) Manual removal of placenta
- 7) Unresolved postpartum haemorrhage (PPH) requiring use of additional oxytocic agents in addition to active management of third stage of labour
- 8) Liver or Renal dysfunction
- 9) Diabetes mellitus
- 10) Intrauterine fetal death
- 11) Having active sexually transmitted disease and other genital tract infection or high risk of sexual transmitted disease.

## OBSERVATION AND RESULT

Key demographic patterns, awareness, insertion timing and complications are summarised.

**TABLE 1: PERCENTAGE OF PPIUCD**

TOTAL NO OF DELIVERIES	TOTAL NO OF PPIUCD INSERTION	PERCENTAGE (%)
5565	1302	23.39%

Out of total 5565 deliveries (including both vaginal and caesarean section), PPIUCD were inserted among 1302 (23.39%) women. Despite the fact that the government offer IUCD services free of cost and IUCD is one of the most effective, safe and reversible contraceptive method, it still remains largely underutilised.

**TABLE 2: AGE (IN YEARS) GROUP OF WOMEN IN THE STUDY**

Age	No. Of women	Percentage (%)
<= 20yrs	39	11.7%
21-30yrs	258	77.5%
31-40yrs	35	10.5%
>40yrs	1	0.3%

In present study, majority of the women (77.5%) belong to the age group of 21-30 years which is most fertile age group.

Mean age of study is 25.85 years.

**TABLE 3: TYPE OF RESIDENCE**

Residence	No. Of Women	Percentage (%)
Urban	241	72.4%
Rural	92	27.6%

In the present study, majority of women (72.4%) belonged to the urban area and (27.6%) belonged to rural areas.

**TABLE 4: PREVIOUS CONTRACEPTIVE METHODS USED BY WOMEN**

Name of Method	No. Of Women	Percentage (%)
Natural	130	39
OCP	10	3
Male Condom	31	9.3
IUCD	3	0.9
DMPA	4	1.2
Not Used	155	46.5

Above table shows different types of contraceptive methods used by the women. Majority of women (46.5%) did not use any Contraceptive method. Natural Contraceptive method was opted by 39% of the women.

**TABLE 5: PPIUCD EXPULSION RATE AT FOLLOW UP**

Sr. No.	Time of Follow up	Expulsion No.	Expulsion (%)
01	At 6 week	5	2.12%
02	At 6 Month	5	2.54%
03	At 1 year	2	1.14%

The table above shows expulsion rate over time of Follow-up. The incidence reported was low. The PPIUCD expulsion rates at 6 week, 6 Months and 1 year were 2.12%, 2.54% and 1.14% respectively.

**TABLE 6: COMPLICATION OF PPIUCD INSERTION**

Follow-up Findings	At 6 weeks		At 6 Months		At 1 Year	
	No.	(%)	NO.	(%)	No.	(%)
No Complications	197	83.83%	166	84.86%	142	81.14%
Bleeding	5	2.12%	6	2.98%	7	4%
Expulsion	5	2.12%	5	2.54%	2	1.14%
Removal	8	3.40%	6	3.04%	5	2.86%
Thread not seen	4	1.7%	4	2.03%	7	4%
Local infection	6	2.57%	5	2.54%	7	4%

<b>Abdominal pain</b>	8	3.4%	7	3.54%	6	3.43%
<b>String problem</b>	11	4.68%	5	2.54%	4	2.29%

The above table shows the complications reported by patients. All the patients were followed up at hospital at 6 week, 6 Months and 1 year.

At 6 weeks, the most common complication was a string problem, affecting (4.68%) (No-11) of women, followed by abdominal pain. In (3.4%) (No-8), local infection in (2.57%) (No-6) and both expulsion and dysfunctional uterine bleeding (DUB) in (2.12%) (No-5) of women.

At 6 Months, the most common complaint was abdominal pain, affecting (3.54%) (No-7) women, followed by DUB in (2.98%) (No-6). Other issues included string problems, expulsion and local infection, each affecting (2.54%) (No-5) of women and missing thread in (2.03%) (No-4).

At 1 Year, the most common complaint were bleeding per vaginum, missing thread and local infection, each affecting (4%) (No-7) of women. This was followed by abdominal pain in (3.43%) (No-6), string problem in (2.29%) (No-4) and Expulsion in (1.14%) (No-2).

**TABLE 7: COMPARATIVE ANALYSIS REMOVAL RATE IN VARIOUS STUDY**

STUDY	YEAR	REMOVAL RATE OF IUCD
<b>Gupta et al</b>	2013	5.6%
<b>Mohan H et al</b>	2015	6.5%
<b>Barala et al</b>	2016	6.12%
<b>Kavitha N S et al</b>	2016	7.57%
<b>Singh U et al</b>	2017	4.41%
<b>Present study</b>	2024	3.79%

## DISCUSSION AND RESULT

The present study ,”A Prospective Study on Postpartum Intrauterine Contraceptive Devices as a Method of Contraception at a Tertiary Care Centre” was performed on 333 patients. This Prospective observational Study was conducted at GMERS MEDICAL COLLEGE AND HOSPITAL,SOLA, AHMEDABAD. Between June 2022 and June 2023,the study included 333 women who had undergone postpartum intrauterine contraceptive devices(PPIUCD) insertion.

- PPIUCD insertion was 23.39% among total deliveries during the study period.
- The majority of women (77.5%) belonged to the age group of 21-30 years.
- Most women (72.4%) were from urban areas.
- Among the women who had a PPIUCD insertion,40.54% were illiterate.
- In our study, acceptance of PPIUCD was high (36.6%) among 2<sup>nd</sup> para women and most of them (80.78%) were housewives.
- In our study, acceptance of PPIUCD was higher among women with a last childbirth>3 years ago(43.54%) and 0-2 years ago (28.52%).
- The majority of women(46.5%) has not used any Contraceptive method previously.
- Prior to study,(72.7%) of the women had no knowledge of the PPIUCD.
- The majority of women(45.9%) were counselled during early labour.
- In the present study,(49.8%) were underwent PPIUCD Insertion during caesarean section and (50.2%) were underwent PPIUCD insertion after vaginal delivery.
- In the present study,(49.8%) of PPIUCD insertion were performed intraopeatively during caesarean section, (30%) were done immediately after vaginal delivery and (20.1%) were performed within 48 hours of vaginal delivery.
- Among women who accepted PPIUCD,(49.8%) did not wish for further conception.
- Safety and reversibility were the main reasons for the higher rate (39.9%) of PPIUCD insertion during the postpartum period.
- The continuation rates of PPIUCD were 94.4% At 6 week, 94.41% at 6 Months and 96% at 1 year.
- The expulsion rates for PPIUCD were 2.12% at 6 weeks, 2.54% at 6 Months and 1.14% at 1 year.
- In the present study the majority of women came for regular follow up at 6 weeks, 6 Months and 1 year with follow up rates of 70.57%, 59.16% and 52.55% respectively.
- At 6 weeks, 83.83% of women had no complications
- Of those who did experience problems, string issues were reported in 4.68% of cases and abdominal pain was noted in 3.4% of women.
- At 6 Months, the majority of women (84.86%) did not develop any complications. Of those who did experience problems, abdominal pain was noted in 3.55% of women.

- At 1 year, the majority of women (81.14%) did not develop any complications. Of those who did experience problems, local infection was noted in 4% women.

## CONCLUSION

PPIUCD is safe, highly effective and reliable Contraceptive method with several advantages, including easy insertion, minimal impact on breastfeeding, cost effectiveness, relief of overcrowded outpatient facilities and protection against unwanted pregnancies and abortions. In the realm of Postpartum Family Planning, PPIUCD is promising approach. The Government of India advocates for free post placental and postpartum IUCD insertion services. However despite being offered at no cost and recognised as one of the most effective, safe and reversible contraceptive method, IUCD remains largely underutilised. The Government must develop strategies to raise public awareness of PPIUCD through various programmes and media outlets. Additionally, The Government-Led training on PPIUCD, focusing on counselling methods, Insertion techniques and proper follow-up will enhance healthcare providers' knowledge and skills, further promoting PPIUCD use.

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